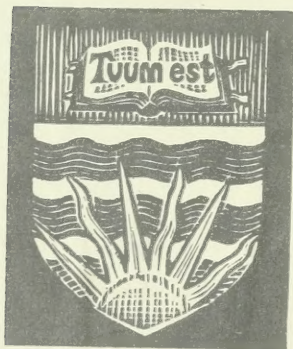


The Decimal
Bibliographical Classification
of the
Institut International de Bibliographie
(Optics, Light and Cognate Subjects)

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The Decimal
Bibliographical Classification
of the
Institut International de Bibliographie

*Partly translated for the formation and use of a Universal
Bibliographical Repertory concerning Optics,
Light, and Cognate Subjects*

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PREFACE

WITH the kind permission of the Institut International de Bibliographie, Brussels, and of M. Paul Otlet, this abridged translation of the classification tables contained in the *Manuel du Répertoire Bibliographique Universel* is presented, but without any pretence of doing justice to the completeness and universality of the original. In fact the translation which forms Part III of this compendium is very fragmentary and is only intended to serve as a guide to the Decimal Index of the *Transactions of the Optical Society* which has been published for Volumes 1-25, and which will be published in the future for each Volume or part of a Volume as it appears.

It is hoped that those interested in optical matters will avail themselves of the facilities thus offered to construct a card-index of much detail which has hitherto been hidden in the *Transactions of the Optical Society*, in the manner described in Part II. Some may desire to collect optical information from other sources and add it to their card indexes, but when this is done care should be taken to use only those decimal numbers which fall within the groups fully translated and set out below.

If, however, it is found necessary to use numbers outside these groups, the cards bearing them should be made to form a separate index—an “abridged index”—so that they may be finished in the future by completing the decimal number after consulting the *Manuel du Répertoire Bibliographique Universel*.

In addition to the group 535 *Light, Optics*, the following groups in the principal tables have been fully translated:

522.2 to 522.6	<i>Astronomical telescopes and instruments.</i>
548.9	<i>Optical properties of crystals.</i>
551.593	<i>Optical phenomena. Meteorology.</i>
578 to 578.5	<i>Microscopy.</i>
612.84	<i>Vision. Physiology.</i>
617.7	<i>Ophthalmology.</i>
621.32	<i>Electric Lighting.</i>
623.462	<i>Artillery instruments.</i>
681.4	<i>Optical Trade.</i>
686.7	<i>Mirror manufacture.</i>
77.0 to 77.037	} <i>Photography.</i>
77.132 to 77.135.6	
77.8 to 77.9	

The Auxiliary Tables II and III are very much abbreviated. Table V is complete, and Table I is also complete with the exception of the following minor groups (018), (024), (071), (074), (076) and (082) which are incomplete, and the groups (025), (026), (027), (079), (086), (087), and (089) which have been omitted.

It should be the aim of all interested in universal bibliographical classification to accept a single and well proven scheme, to abide rigidly by its rules, and to introduce no new division without the sanction of the central body from which the classification emanates. The scheme here described has been well proven by extensive use on the continent and appears to be slowly becoming universal. In accordance with the expressed wishes of the Institut I have not replaced or deleted any original division, though many new titles have been added to the corresponding decimal numbers in the fully translated groups in order to make their meanings more explicit.

This procedure is not only legitimate but is necessary and can be pushed to any extent. Such verbose detail, necessary to the classifications devoted to small and special branches of learning, could not be included very well in the universal *Manuel* in which the tables occupy more than 1,800 pages and are composed of more than 33,000 decimal divisions. In addition I have included many more cross references than will be found in the original work, but these necessarily must be incomplete. Indeed any criticisms, or indications of omissions, of any kind, are cordially invited, in order that the classification may be made more comprehensive and universally useful in the future.

The various divisions and subdivisions of the whole classification are so inter-related, in many cases, that some of the cross references relate to divisions outside the scope of the present work. This has been done to caution the bibliographer that such divisions exist. For the same reason, as well as for indicating the vastness of the complete scheme, many of the examples illustrating the subject matter of Part I are borrowed from other parts not included in this fragmentary translation.

Few, no doubt, will have sympathy with the order of the classification, but it must be remembered that the chief object of a bibliographical classification is to assign to a single notion a single number which can at once be found in a massed collection, and though the original compilers of the index in 1905 attempted to construct an

order as logical as possible—now hopelessly out of date in many instances—this consideration is really of minor importance.

What is of more importance, however, is that any one subject shall not be assigned to more groups than necessary and perhaps in some cases the classification is a little redundant in this respect, but these defects may possibly be remedied in the course of time by the Institut International de Bibliographie.

In special classifications extracted from the *Manuel* redundant decimal numbers can be deleted, but these numbers must never be used for any other purpose, or confusion will result with the published bibliographies of the Institut.

In Parts I and II, I have endeavoured to give as brief a description of the classification, its rules and its application as clearness will allow, and in Part IV the Alphabetical Index to the tables must be regarded merely as a guide to that decimal group in the tables which contains the detail sought.

The almost total ignorance of the Brussels Bibliographical Decimal Classification in this country may be caused by the scarcity of the *Manuel** and the lack of even a fragmentary translation into English. It is hoped, however, that a reprint of the work will be published shortly when possibly this immense classification will become used more widely.

No scheme of bibliographical classification as such could be devised to meet all criticisms. But this scheme stands well in advance of the hundred or more schemes which exist and have existed, for simplicity, elasticity, universality, and rapidity of manipulation, as well as for low cost in practical application to any extensive collection of printed or written matter.

It may not be possible to gather the bibliographical references to the world's literature under one system. But the necessity is rapidly increasing for a unique universal bibliographical classification correlating the various special schemes in existence with their incomplete or specialised bibliographical indexes. This necessity becomes more apparent when one realises the overlapping of human endeavour—a kind of inertia to human progress—which takes place in almost every sphere through “lack of information.” Many workers in Science and Industry know this to their bitter cost.

* A copy is in the Library of the Patent Office.

In conclusion I desire to express my thanks to Dr J. S. Anderson, to Major E. O. Henrici, and especially to Mr T. Smith, President of the Optical Society, who have read the MSS. with much care and made valuable suggestions where the subject matter was not quite clear. I also wish to thank the Council of the Optical Society who have so generously borne the expense of publishing this small work, difficult to print, but beautifully executed by the Cambridge University Press. The labour has given me much pleasure as it appears likely to assist me in one of my main objects, the introduction of this powerful tool of bibliographical research into British Science—the seed perhaps of a great Central Bureau of Scientific and Industrial Information, the prototype of which now exists at Brussels.

A. F. C. POLLARD.

THE IMPERIAL COLLEGE OF
SCIENCE AND TECHNOLOGY,
LONDON,
March 5, 1926.

CONTENTS

PART I

DESCRIPTION AND RULES OF THE DECIMAL BIBLIOGRAPHICAL CLASSIFICATION

PARA.	PAGE
1. Preamble	1
2. The simple decimal divisions	1
3. Decimal numbers written as integers and the use of the point	3
4. The order of succession of the decimal or index numbers	3
5. The development of the Dewey system	3
6. Special use of the intercalated zero	5
7. Signs of combination	5
8. Auxiliary signs	5
9. The sign of relation or association	6
10. Use of brackets in compound numbers	7
11. The use of the hyphen in compound numbers	7
12. The Common Subdivisions	8
13. The Subdivisions of Form and of Generalities	8
14. The Subdivisions of Place	9
15. Subdivisions of Time	9
16. The Subdivisions of Language	9
17. Signs for objects other than bibliographical documents	10
18. Table of the notation of the Decimal Classification	10
19. The order of succession of the signs	11
20. The decimal tables and alphabetical indexes	12
21. Summary	12

PART II

APPLICATION OF THE DECIMAL CLASSIFICATION

1. The card index system	14
2. The filing of cards	16
3. Folders containing information	17

PART III

	PAGE
The Principal Tables	19
Auxiliary Tables of the Common Subdivisions	67
General Observations	68
Auxiliary Table I :	
Subdivisions of Form and Generalities	69
Auxiliary Table II :	
Subdivisions according to Place	81
Auxiliary Table III :	
Subdivisions of Languages or Dialects	87
Auxiliary Table IV :	
Subdivisions of Time	89
Auxiliary Table V :	
Common Analytic Subdivisions or Subdivisions of General Points of View	91

PART IV

Alphabetical Index to the Tables	95
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PART I

DESCRIPTION AND RULES OF THE DECIMAL BIBLIOGRAPHICAL CLASSIFICATION

1. *Preamble.*

In order to establish an infinite series of numbers having the necessary properties for the purpose of a bibliographical classification, it is supposed that the whole of knowledge is represented by unity.

The first ten decimal divisions of unity represent ten great groups in which all the subjects that can be made the object of an intellectual work may be classed. Each of these primary groups can be divided into ten further groups, of which each may represent more detailed division of the primary group, and by further such division it is evident that the representation of detail within any group can be carried out to any extent. Moreover, the decimal number which represents any division of any group has a definite numerical position in the possible infinite fractional complex of unity, and no matter how extended the subdivision of any one group may become, the numerical order of the decimal numbers constituting the two groups on either side of it remains undisturbed.

Thus it will be seen that any subject of an intellectual work, once it has been arbitrarily assigned a decimal number, can be placed in a definite numerical position in a collection of bibliographical matter, it can at once be found, and can, if necessary, be further subdivided without in any way disturbing the numerical order of the rest of the matter.

2. *The simple decimal divisions.*

The first primary division of unity, comprising all numbers between 0 and 0.1, has been assigned to works dealing with general subjects, which are not contained in the nine primary divisions 0.1 to 0.9 or are concerned with the subjects of several of those divisions.

This division will contain such works as Bibliographies, Encyclopaedias, etc.

The nine other primary divisions are established as follows

- 0·1 Philosophy.
- 0·2 Religion, Theology.
- 0·3 Social Sciences, Law.
- 0·4 Philology, Languages.
- 0·5 Natural Sciences, Mathematics.
- 0·6 Applied Science, Industries.
- 0·7 Fine Arts.
- 0·8 Literature.
- 0·9 History, Geography.

Each of these is again subdivided and, as an example, the primary group 0·5† *Science* may be taken, which is divided as follows:

- 0·51 Mathematics.
- 0·52 Astronomy, Geodesy, Navigation.
- 0·53 Physics.
- 0·54 Chemistry, Mineralogy.
- 0·55 Geology.
- 0·56 Palaeontology.
- 0·57 Biology, Anthropology.
- 0·58 Botany.
- 0·59 Zoology.

By further division of these secondary groups and the succeeding groups, the decimal equivalent of a single subject is quickly reached. Thus :

- 0·53 Physics.
- 0·535 Optics.
- 0·5357 Physiological Optics.
- 0·53575 Defects of the eye and their correction.

It will be seen that a conception requiring 33 letters or symbols to define it in English is represented by a decimal number of five figures, occupying a definite position amongst all decimal numbers and independent of the tongue in which the conception is expressed.

All works, papers, memoranda, notes, etc., dealing with the defects of the human eye and their corrections from the optical point of view and bearing the index number 0·53575 will be filed together, and the finding of any one of these will lead to the discovery of all the information upon that subject contained in the whole collection.

By the addition of one figure to this decimal number, nine more

divisions can be formed, any one of which may be equivalent to a more detailed subdivision of the subject, and evidently these subdivisions can be inserted between the two previously established divisions without disturbing their numerical order.

3. *Decimal numbers written as integers and the use of the point.*

In practice it is convenient to omit the decimal point and the decimal numbers are written as whole numbers. The decimal number 0.53575, which has been taken as an example, will then be written as 53575, but in order to aid the memory and eye by emphasising certain subdivisions, it has been found useful to subdivide the number into groups by means of points. Thus the above number written as

535.75

at once indicates the fifth subdivision of the seventh division of the group 535 *Optics*. In the use of the decimal system the fact that any number, however it may be divided or split up into groups of figures by the point, is in reality a simple decimal number less than unity, must never be forgotten.

4. *The order of succession of the decimal or index numbers.*

The order in which the different decimal or index numbers will be classed is merely that of the decimal numbers. Thus, for example, the apparently smaller number 535.81 will be classed after 535.548.3, since these two numbers are in reality decimals.

The sorting of cards for filing in decimal order then becomes a simple mechanical process, which can be readily done by cheap labour. The cards are first sorted into the ten primary groups as indicated by the first figure of the index number, then each of these groups is sorted into the secondary groups indicated by the second figure, and the sorting can be carried out to any extent in this manner with minimum labour and the least chance of making mistakes.

5. *The development of the Dewey system.*

The decimal number used in the manner explained above was originally applied to bibliographical classification by Melvil Dewey, the Director of New York State Library, who published the first edition of his *Decimal Classification and Relative Index* in 1876. The sixth edition was published in 1899. In 1895, the promoters of the first International Bibliographical Conference had to search in a

spirit of impartiality for principles on which they could establish the classification of the *Répertoire Bibliographique Universel*, which is now housed in the Palais Mondial at Brussels. The conference decided that the Dewey system was founded on principles which would enable it to be transformed into a highly satisfactory international bibliographical classification and accepted it as the working basis of their deliberations.

The Institut International de Bibliographie, which was founded to continue the work of the conference, assumed the task of giving effective realisation to the desiderata propounded with regard to this classification and published the first edition of the *Manuel du Répertoire Bibliographique Universel* in 1899. The second edition of this publication appeared in 1904 and contains a highly developed and extended classification in all branches of intellectual activity, together with certain signs and auxiliary tables of special decimal numbers which can be used to form subdivisions of any simple decimal number. The work is completed by a full explanation of the rules to be observed in bibliographical indexing and an extensive alphabetical index to the subjects contained in the tables of the decimal classification. There can be no doubt that the decimal system of the Institut International de Bibliographie is the most perfect and at the same time the simplest and cheapest method of indexing bibliographical material which has ever been devised¹.

It may also be applied to the cataloguing of photographs, pieces of music, collections of coins, collections of microscope slides, etc., etc., in the most comprehensive and complete manner possible, and is in fact nothing less than a method of expressing notions of the mind in figures, which are independent of language, understood by all, and have a definite and easily found position in any collection of material however great.

It will now be necessary to explain the unique features of this decimal system, i.e., the signs and auxiliary numbers and the manner in which these are used. Indeed, these signs and their appropriate decimal groups, by association with the simple decimal numbers, convert the restricted and imperfect Dewey decimal system into a powerful tool of bibliographical research worthy of universal recognition.

¹ At least 150 bibliographical systems have been devised, of which about 50 were created before the nineteenth century.

6. *Special use of the intercalated zero.*

With the exception of the zero which forms numbers in the primary group 0.0 to 0.1, indicating general works, the zero when used elsewhere must be regarded in the light of special rules if confusion is to be avoided. Numbers which commence with a zero have an analytical sense and form two series of analytical subdivisions. Those commencing with a double zero are common to the whole of the classification and can be associated with any decimal number. They indicate a "Point of View" and constitute the Common Analytical Subdivisions specified in Auxiliary Table V. For example:

- ...0043 *Transport and Packing.*
- 535.8 *Optical Instruments.*
- 535.8.0043 *The packing of optical instruments.*

On the other hand, numbers commencing with a single zero only apply to the whole or part of one science and have consequently a special meaning for each science. These analytical numbers constitute Special Analytical Subdivisions which will be found at the head of those divisions to which they exclusively apply, together with notes upon their use. For example, at the head of 53 *Physics* and 77 *Photography* such a series of numbers will be found. Thus:

- ...027 *Treatment and utilisation of residues.*
- 77.23.027 *The treatment and use of the residues in photographic processes with platinum base.*

7. *Signs of combination.*

The intercalated zero used in the manner described above may be regarded as a combination sign.

Other signs are found to be necessary for the formation of compound numbers and permit complex notions, frequently encountered in the analysis of subjects for classification, to be expressed in a uniform and ordered manner. The signs consist of the colon :, the hyphen -, the sign of equality =, the parenthesis ... and inverted commas "...".

8. *Auxiliary Signs.*

In certain cases the sign of addition + or the brace { and the letters of the Roman alphabet are used.

The letters A to Z are used to complete certain classification

numbers for the purpose of further subdivision and indicate the initial letters of the names of institutions or publications. Proper names are written in full, when completing the decimal numbers indicating literary works, varieties of animal and vegetable species, or biographies. Thus:

92 (Newton, Sir Isaac) *The Life of Sir Isaac Newton*.

These letters are naturally filed alphabetically under the common decimal numbers to which they are attached. The plus sign + or the brace } serves to unite two or more decimal numbers when it is required to indicate that a work contains two or more unrelated subjects. Thus:

538.74 + 52.241,

or

$$\begin{array}{r} 538.74 \\ 52.241 \end{array} \}$$

indicates a single work dealing with *Compasses* (the navigational instrument) and *Sextants*.

When common subdivision numbers are applicable to both decimal numbers, the writing of the two compound numbers may be shortened by the use of the brace } or the square bracket]. Thus instead of

35.8 (05) (44.36) (R.A.) + 623.4 (05) (44.36) (R.A.),

which indicates the *Revue d'artillerie*, a French periodical publication devoted to artillery (administration) and artillery material, the following abbreviated forms may be written

$$\begin{array}{r} 35.8 \\ 623.4 \end{array} \} (05) (44.36) (R.A.),$$

or

$$35.8 + 623.4] (05) (44.36) (R.A.).$$

If the number of subjects exceeds two, it is more convenient to write out a separate card for each subject with its corresponding index decimal number.

9. *The sign of relation or association.*

The sign of relation or association between subjects in a work is the colon :, and is perhaps the most useful and extensively used of all the signs. It is only used where there is an implied relation or association between the subjects. For example:

331.2 : 677 *Salaries—in the textile industry.*

When a card is made out in this manner it should be duplicated with the compound decimal number reversed, thus :

677:331.2,

which reads *The textile industry—salaries concerning.*

Thus the two cards appearing in their separate and appropriate places in the whole index, the bibliographical notice which they bear will be found, whether it be sought for under 331.2 *Salaries* or 677 *The textile industry.*

The order in which such compound numbers are filed within the group will be explained later.

It may sometimes be necessary to link up three related subjects in this manner. The cards must then be made out in triplicate.

10. *Use of brackets in compound numbers.*

Sometimes the square bracket is used in compound numbers with the same function as when used with the + sign (see para. 8). In this case, in order to indicate that the common subdivision applies to the compound number taken as a whole and not merely to that component which it immediately follows, the two parts are separated by a square bracket. Thus :

016:535] (05) *Periodical bibliographies of Optics,*

but if the bracket is omitted

016:535 (05) the compound number implies

Bibliography of periodicals devoted to Optics.

11. *The use of the hyphen in compound numbers.*

The formation of compound numbers by means of the sign of relation sometimes leads to long numbers, in which the same principal decimal divisions or groups are repeated, and the filing of which may present difficulties.

In consequence certain *conjoint divisions* have been created by taking subgroups of decimal numbers already formed in some parts of the tables and attaching them to groups in other parts. This procedure is specifically indicated by the words—*to be subdivided as.....*, these words being followed by the decimal number of the group, the already formed subgroups of which can be used in this manner.

Thus, the subgroups of 621.1 *Steam Engines*, may belong to the group 536.81, which in the physical sciences corresponds also to the

steam engine. So that if the note—*to be subdivided as 621.1*—is inscribed in the table with regard to 536.81, then, for example, the abbreviated number 536.81-8 may be written, when it is required to apply to this group 536.81 the eighth subgroup of 621.1, which corresponds to the special study of the production of steam in these engines.

The hyphen is also of considerable use when abbreviating compound numbers containing the same group. For example, instead of writing

77.9:77.86 *Collection of colour photographs ;*

where 77.9 signifies *Collections of photographs*

and 77.86 *Colour photography*

the abbreviated number 77.9-86

may be written. But to avoid confusion it is clear that the creation of these conjoint divisions and the use of the hyphen must not be optional and that the hyphen must only be used in those cases specifically indicated in the tables.

12. *The Common Subdivisions.*

The Common Subdivisions comprise decimal groups of *Place*, of *Time*, of *Language*, of *Form* and of *Generalities*, and finally groups of *Points of View* which are characterised by the single and the double zero. The last have already been described in para. 6 (see Auxiliary Table V).

The Common Subdivisions which form the subject of the Auxiliary Tables may be associated, singly or conjointly, with any decimal number in the principal classification.

13. *The Subdivisions of Form and of Generalities.*

The parenthesis, in combination with numbers commencing with zero, gives rise to subdivisions which are employed to indicate the form, the origin, the destination, or the special nature of the work under consideration. Thus :

53 (021) *A Treatise on Physics.*

53 (03) *A Dictionary of Physics.*

... (05) *A periodical publication.*

... (06) *A publication issued by a Society.*

... (07) *A work intended specially for instruction.*

These subdivisions are the subject of the detailed Auxiliary Table I.

In addition to this group of form numbers, there are special groups which are only applicable to particular parts of the principal classification. These special groups are symbolised by the double zero within parenthesis, and are to be found at the beginning of that group in the classification to which they specially apply.

Thus for the division 6 *Applied Science*, such a group has been created, and *patents* will be found here symbolised as (008).

14. *The Subdivisions of Place.*

The parenthesis, in combination with numbers commencing with a figure other than zero, is employed to form the *Subdivisions of Place*, namely—Geological (numbers commencing with 1), Physical (numbers commencing with 2), and finally Political (numbers commencing with figures between 3 and 9). These subdivisions are borrowed from the principal classification numbers of Geology, Physical Geography, and History. They form the subject of the Auxiliary Table II. Examples:

- ... (115) *Carboniferous rocks.*
- ... (285) *Lakes.*
- ... (42) *England.*
- ... (94) *Australia.*
- 5 (058) (7) *North American Year Books on Science.*

15. *Subdivisions of Time.*

Inverted commas serve to form subdivisions of time, by enclosing within them the dates which assign limits to or specify the periods of events.

For details of the conventional method of writing dates, Auxiliary Table IV must be consulted.

16. *The Subdivision of Language.*

The sign of equality is used to form the subdivisions of the languages in which works are written. See Auxiliary Table III. Examples:

- = 4 *Works written in French.*
- = 7 *Works written in Latin.*

17. *Signs for objects other than bibliographical documents.*

The decimal bibliographical classification was primarily intended for the classification of bibliographical matter, but it may be extended to engravings, pieces of music, coins, pictures, etc., by prefixing a letter, chosen to represent the nature of the assembly of objects, and writing it before the decimal number. Thus :

78.71 *Violin.*

.02 (Special analytical subdivision.)

Music with accompaniment for the instrument.

M. 78.71.02 *Piece of music for the violin with accompaniment.*

18. *Table of the notation of the Decimal classification.*

It will be useful to present in a table the notation of the special groups of decimal numbers which have been described, together with the signs of combination and abbreviation, used to form compound decimal numbers.

AUXILIARY SUBDIVISIONS.

Notation	Designation	Remarks
(o...)	Subdivisions of Form and of Generalities	Auxiliary Table I
(oo...)	Special subdivisions of Form (of the nature of documents)	Special table at head of the decimal group concerned
(1 to 9)	Subdivisions of Place	Auxiliary Table II
= 1 to 9	Subdivisions of Language	Auxiliary Table III
"..."	Subdivisions of Time	Auxiliary Table IV
(A—Z)	Alphabetical subdivisions	Placed at the end of certain decimal groups
...oo	Analytical subdivisions or Subdivisions of Points of View	Auxiliary Table V
...o	Special analytical subdivisions	Special table at head of the decimal group concerned

SIGNS OF COMBINATION AND ABBREVIATION.

:	Sign of relation or association	Used to represent complex notions and to form new subdivisions with the advance of knowledge
+	Sign of addition	May be replaced by the brace
—	Sign of <i>conjoint divisions</i>	Use reserved for the cases indicated in the classification
A—Z	Sign of non-bibliographical material	Sign to be placed before the decimal number representing the object

19. *The order of succession of the signs.*

The order of succession of the simple decimal numbers requires no further explanation (see para. 4), but when the conventional signs enter compound numbers it is necessary to give these a definite order of succession.

The point ., the sign of addition +, the brace } and abbreviation brackets], which are purely auxiliary signs, have no succession order and may be disregarded when filing material.

Cards bearing decimal numbers connected by the plus sign or the brace require to be written out in duplicate with the numbers reversed, since these two numbers represent subjects which are independent of one another. The hyphen, when used as a sign of combination, need not as a rule be endowed with any classification order. However, it may happen that two numbers are accidentally composed of the same figures, the one with and the other without this sign, and thus have widely separated interpretations. It is therefore necessary definitely to assign an order of succession to this sign. The succession order which has been assigned to the signs and characters employed in the formation of the classification numbers is as follows:

(...), "...", =, :, -, A—Z, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

As an example the following numbers will be filed in the following order:

77.9	Collections of photographs.
77.9 (064)	Exhibitions of photographs.
77.9 (085)	Price lists of photographs.
77.9 (661)	Photographs of the Sahara.
77.9 (71)	Photographs of Canada.
77.9 "1839"	Collection of photographs taken in 1839.
77.9 ": 2"	Photographs of the Seasons.
77.9 : 522.29	Photographs of celebrated astronomical telescopes.
77.9-831	Collection of photomicrographs.
77.9-863	Collection of Lippmann photographs.
77.9 (Maxwell)	Photographs of Maxwell.
77.9.0044	Storage of collections of photographs.
77.9.033.3	Photographs of machines.
77.9.036	Medical photographs.

It will be noted that the developed classification automatically exposes the historic growth of a subject as the information upon it accumulates. This is an economic and useful property of this method of bibliographic classification.

20. *The decimal tables and alphabetical indexes.*

The alphabetical index in the *Manuel* which serves as a key to the classification scheme is not and could not very well be an index to every detail contained therein.

In the first place such an index would be unnecessarily large, since the function of the alphabetical index is to lead the student to the correct group of decimal numbers, where he can find the decimal number which has been assigned to the detail he seeks and note the cross references which may be given to other parts of the classification.

In the second place it would not be possible alphabetically to index completely and satisfactorily notions requiring extended phraseology which may be represented by single decimal numbers and with which the classification must necessarily abound.

When subsidiary classifications, however, are extracted from the *Manuel* to meet the requirements of collections of information restricted to comparatively small fields of knowledge, the accompanying alphabetical indexes may gradually be made as complete as desired by inscription on movable cards.

21. *Summary.*

In short, the decimal bibliographical classification of the Institut International de Bibliographie consists of a vast systematic table of subjects, in which knowledge is bibliographically, but not philosophically classed with as much logical order as possible, proceeding from the general to the particular, from the whole to the part, from the genus to the species.

Each subject in this table is represented by a decimal number composed of one or more figures according to the degree of generality. These numbers are decimal in the sense that each figure towards the right does not modify the ordinal value of the preceding figures, but corresponds to a subdivision of the subject represented by them. The order in which the figures follow one another is thus the decimal order.

Certain groups of numbers distinguished by special signs, when combined with the simple decimal numbers and with one another to form compound numbers, enable multifarious and varied notions to be represented.

The signs are given a definite succession order, so that the compound numbers may be filed in definite order with the simple numbers.

The whole classification is completed by an alphabetical index of subjects with their corresponding decimal numbers. By indexing documents, or even objects which are not of a bibliographical nature, with these classification numbers, collections can be made, ranged in methodical order and capable of receiving continual increments and intercalations.

PART II

APPLICATION OF THE DECIMAL CLASSIFICATION

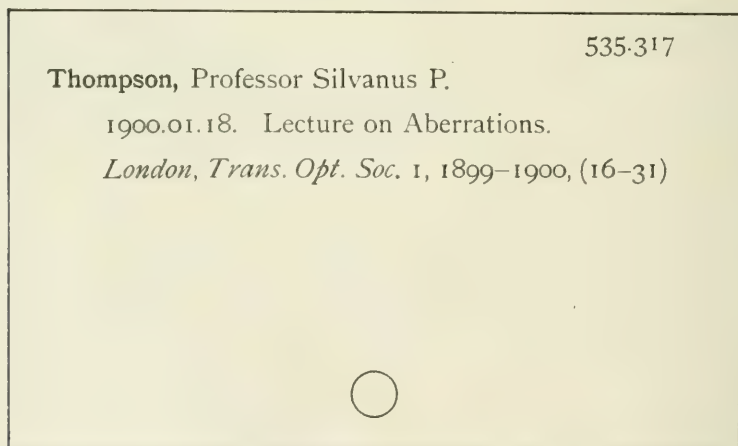
1. *The card index system.*

The Decimal Bibliographical Classification is particularly suitable for indexes established on movable cards.

Each card should bear the title of a single work with the corresponding decimal or index number, and on no account should more than one work be inscribed on the same card, even though the several works to be indexed deal with precisely the same subject.

It has been found that the best and most economical card for universal use is the standard 5" × 3" (or 125 mm. × 75 mm.) white card made of tough material, with a $\frac{5}{16}$ " circular hole punched in the middle line, its centre being $\frac{3}{8}$ " from the lower edge.

The cards are filed with the longest dimension horizontal in the drawers of the usual card index cabinets.



The hole in the card receives the rod with which each drawer should be fitted. By this simple device the cards are securely held, and accidental derangement of the order in which they are filed is prevented.

In fact the drawer is analogous to the binding, the cards to the

pages and the index numbers to the pagination of a book, with the difference that new cards can be inserted at any time. The index is thus always complete but never finished, and is encyclopaedic in nature.

It is important that a standard method of inscribing the information upon the card should be adopted, and the following method of the Institut International de Bibliographie is highly recommended.

The figure shows a specimen card. The *Index Number* is in the right-hand top corner.

The *Name of the Author* is inscribed one line below the index number and to the left. The surname should appear first, followed by the Christian names; if the latter are not known, the initials are spaced apart, so that the Christian names can be filled in at a later date. When two authors are responsible for a work, their names should be inscribed below one another, but in this case it is necessary, for the purpose of filing, to make out the card in duplicate with the names reversed in position. Should a work be anonymous, the author's name is to be replaced by a bracket followed by three dots, thus, [...]. Such a card will naturally have no place in the Author Index.

The *Title of the Work* appears on the next line below the author's name, but it is preceded by the *date* when the work was received or first made public, written in the decimal manner (see Auxiliary Table IV, F). This date serves as a means of sub-classification in a collection of cards bearing the same index number, and is otherwise of importance as far as precedence is concerned.

Cards of a single subject, bearing the date and filed chronologically in this manner, automatically reveal the historical development of the subject.

The *Bibliographical Reference* follows the title of the work on a new line. It will be found necessary to adopt some standard procedure of abbreviated inscription for the bibliographical references to scientific and technical works and journals, and no better standard can be adopted than that of the *International Catalogue of Scientific Literature*.

The card may be completed by a short abstract of the subject matter of the work, and it is convenient to place this after all bibliographical descriptions and references.

The abstract, or any other notes it is desired to record, should be enclosed in square brackets, the last bracket being omitted to allow future addition. If the bibliographical matter is so lengthy that it must be carried over to the reverse of the card, it will greatly facilitate reading the back of the card while *in situ* in the drawer, to inscribe the matter upside down, i.e. with the hole at the top.

The complete matter thus inscribed upon the card constitutes a *Bibliographical Notice*. The bibliographical notices of the *Transactions of the Optical Society* are printed on one side of thin paper, so that they can be cut out and separately pasted upon cards.

Cards filed by the index numbers constitute the "Subject Matter Index."

If necessary, duplicates of these cards may be made out, and when filed alphabetically by names of authors constitute the "Author Index." This index is of great utility, for it is naturally easier to find a bibliographical reference by name of author, when this is known, than by the decimal number.

2. *The filing of cards.*

In the subject matter index the cards are filed by the decimal index number in the succession order which has been described.

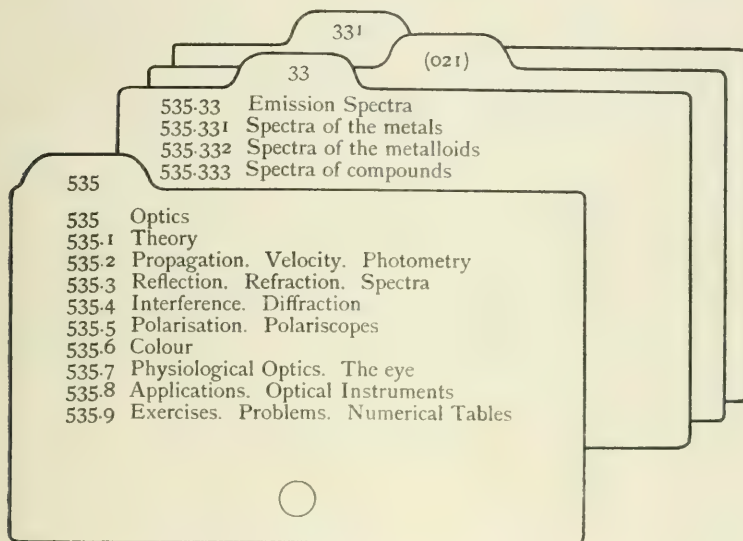
For purposes of quick reference divisional cards of a stouter material should be used. The upper edge of these cards bear projecting tabs, upon which the leading numbers of the decimal classification can be inscribed. It will be found convenient to use divisional cards cut in fifths, and to use the first tab for main groups of not more than three figures. The second tab can then be used for the succeeding figures, again not exceeding three of any one group. The third tab may perhaps be inscribed with an analytic subdivision number, and the fourth and fifth tabs may be used for further chronological or geographical subdivisions, in accordance with the manner in which the index cards have locally accumulated.

It will be seen that by arranging the divisional cards in this way they will lie in echelon in the drawers and effectively group the index cards.

Reference will be simplified if each divisional card has inscribed upon it an abbreviated table of the subdivisions of the number on the tab.

Four such divisional or guide cards are shown in the illustration.

Divisional cards for author indexes are now so universally used that description is hardly necessary, but it should be observed that it is more convenient to use guide cards cut fifths, with the first tabs reserved for the letters of the alphabet and as the index cards



increase in numbers, the second tabs for the most frequent second succeeding letters, the third tabs for the third succeeding letters and so on, arranged in echelon, rather than the clumsy zig-zag method generally adopted.

3. *Folders containing information.*

It may happen that the abstract of a work is too lengthy for inscription upon the 5" × 3" cards, or that notes or original papers require to be filed.

For this purpose folders made of stout material can be used, to hold the notes, cuttings, articles, etc. The folder should be large enough to hold foolscap, and a convenient size to pack neatly into the usual foolscap drawer cabinets measures 14" wide with the front flap 9½" and the back flap 9" high.

The index number of the corresponding card should be inscribed in the right hand top corner on the outside of the front flap and its contents should be briefly described also on the outside of the front flap.

The folders are separated by large guide cards in precisely the same way as the 5" x 3" cards.

When bibliographical matter is filed in a folder in this manner it is convenient to note the fact on the corresponding card by inscribing an asterisk immediately at the head of the title and, in the case when the index number is a compound number, it is advisable in addition to underline that component of the compound number under which the original matter has been filed. Thus the index number 535.417:578.2 requires two cards in the subject matter index, one inscribed with the index number written as 535.417:578.2 and the other with the index number written as 578.2:535.417. If the original matter is filed in a folder bearing the index number 535.417:578.2, the numbers on the two cards should indicate this fact by being written as 535.417:578.2 and 578.2:535.417 respectively.

PART III

THE PRINCIPAL TABLES

THE TEN PRIMARY DIVISIONS OF THE DECIMAL BIBLIOGRAPHICAL CLASSIFICATION

- 0 GENERAL WORKS.
- 1 PHILOSOPHY.
- 2 RELIGION. THEOLOGY.
- 3 SOCIAL SCIENCES. LAW.
- 4 PHILOLOGY. LANGUAGES.
- 5 NATURAL SCIENCES. MATHEMATICS.
- 6 APPLIED SCIENCES. TECHNOLOGY.
INDUSTRIES.
- 7 FINE ARTS.
- 8 LITERATURE.
- 9 HISTORY. BIOGRAPHY. GEOGRAPHY.

ABRIDGED AND IN PART FULLY DEVELOPED TABLES
OF THE DECIMAL CLASSIFICATION

0 GENERAL WORKS.

01 BIBLIOGRAPHY.

011 Universal bibliographies.

012 Individual bibliographies of authors, classed alphabetically from A to Z.

013 Bibliographies by classes of authors.

Ex. 013 : 271.5 *Bibliography of the Jesuits.*

014 Anonymous and pseudonymous bibliographies.

015 Bibliographies of countries, divided geographically.

Ex. 015 (44), *Bibliography of France.*

016 Bibliographies of special subjects.

The subdivisions are made by means of all the numbers of the classification preceded by:

Ex. 016 : 52 *Bibliography of Astronomy.*

017 Book catalogues of libraries and of sales.

The following divisions are subdivided geographically.

017.1 Catalogues of public libraries.

017.2 Catalogues of private libraries.

017.3 Catalogues of sales of books.

017.4 Commercial catalogues of publishers or of book-sellers.

02 LIBRARY ECONOMY. THE LIBRARY.

021 Function, creation and development of libraries.

022 Position and material installations.

023 Organisation and staff.

024 Relations with the public.

025 Administration.

025.4 Classification.

This division is concerned only with the classification of documents. Everything which concerns the classification of the sciences and the classification of human knowledge from the philosophical, logical and scientific point of view is classed under 112, *Methodology.*

- 027 **Various libraries in particular.**
 028 **The reader.** Advice and assistance to readers.
 029 **Literary and scientific work.** Only the practical methods, the material and the tools of intellectual work are classed here.

03 **GENERAL ENCYCLOPAEDIAS.**

04 **GENERAL COLLECTION OF ESSAYS.**

- 05 **GENERAL PERIODICALS. REVIEWS.**
 Divided geographically. The special periodicals of a science are classed with the generalities of that science (05).

Ex. 52 (05) *Reviews of Astronomy.*

- 058 **Annals.** Books of names and addresses classed by country. Only general annals are classed here; annals peculiar to a subject are classed with that subject (058).

- 059 **Almanacs.** Only general almanacs, agenda, and calendars are classed here. When these works are specially concerned with a subject, they are classed with that subject (059).

06 **LEARNED SOCIETIES.**

Publication. Comptes rendus. Reports.
 Divided geographically according to the principal geographical position of the society. Societies, of which the object is limited to a particular science are classed with the generalities of that science (06).

Ex. 52 (06) (44) *Comptes rendus de la Société d'astronomie de Paris.*

- 07 **POLITICAL JOURNALS. JOURNALISM.**
 Divided geographically according to the place of publication of journals. Special journals are assimilated to reviews and are classed with the generalities of each subject (05).

Ex. 7 (05) *Art Journal.*

- 08 **COLLECTIONS. LIBRARIES AND SPECIAL COLLECTIONS. SERIES.**

081 **Individual polygraphs.** Complete works of the same author classed alphabetically from A to Z.

082 **Collected polygraphs. Collections.** Only works of this kind which embrace many subjects are classed here. Those which treat of a particular subject are classed with that subject.

083 **Official and governmental publications.** The official publication of states, provinces, communities, parliaments and other administrative and public bodies such as blue books, yellow books, green books, reports, memoranda, etc., are classed:

(a) under the subject with which they are concerned when they are treated as separate works. Thus the *Interim Report on Industrial Efficiency and Fatigue, Ministry of Munitions 1917 Cd. 8511*, would be classed under 158.1;

(b) with the institutions from which they emanate by the subdivision of form (087.1). Publications emanating from...if they are published in collection.

Ex. 354.42 (42) (087.1) *Collections of publications of the Postmaster General.*

Optionally and by duplicate principally in the classification of libraries; it is permissible to collect under this division all official publications into a general collection, dividing them into country, province and community, followed by the alphabetical order of the institutions from which they emanate.

Ex. 083 (42) *Official publications of England.*

087 **Diverse publications. Publications for children. Varia.** Classical books for elementary teaching are classed under 372. Classical books for higher and academical teaching are classed with the subjects to which they refer.

09 **MANUSCRIPTS. PRECIOUS OR REMARKABLE BOOKS.**

The following divisions are based on the exterior character of the works and not on the subject of which they treat. Writings which deal theoretically with such works will be classed here. As a general rule works are classed with the subject to which they refer.

- 091 Manuscripts. Autographs.
- 092 Xylographic books.
- 093 Incunabula.
- 094 Rare editions. Ex. Alde, Elzevir, etc.
- 095 Precious bindings.
- 096 Illuminated and illustrated works or impressions on precious materials.
- 097 Ex Libris.
- 098 Prohibited or fictitious works.
- 099 Other bibliographical rarities. Curiosa.
Works of miniature form, etc.

I PHILOSOPHY.

- 11 METAPHYSICS.
- 13 MIND AND BODY.
- 14 PHILOSOPHICAL SYSTEMS.
- 15 PSYCHOLOGY.
- 16 LOGIC.
- 17 ETHICS.
- 18 ANCIENT PHILOSOPHERS.
- 19 MODERN PHILOSOPHERS.

2 RELIGION.

3 SOCIOLOGY. LAW.

- 31 STATISTICS.
- 32 POLITICAL SCIENCE.
- 33 POLITICAL ECONOMY.
- 33I Labour and workers.
- 33I.2 Salaries. Wages.

- 34 **LAW.**
- 35 **ADMINISTRATION. ADMINISTRA-
TIVE LAW.**
- 351 Administration of a central government.
- 352 Administration of local government.
- 355 Military Art in general. Organisation, em-
ployment and working of the forces.
- 356 Infantry.
- 357 Cavalry.
- 358 Artillery. Engineers. Technical services.
- 359 Marines. Navy.
- 36 **CHARITIES. INSURANCE. ASSOCIA-
TIONS.**
- 37 **EDUCATION.**
- 38 **COMMERCE. COMMUNICATION.
TRANSPORT.**
- 39 **CUSTOMS. COSTUMES. FOLKLORE.**
- 4 **PHILOLOGY. LANGUAGES.**
- 5 **THE SCIENCES.**
- 51 **MATHEMATICS.**
- 511 Arithmetic.
- 512 Algebra.
- 513 Geometry.
- 514 Trigonometry.
- 515 Descriptive geometry.
- 516 Analytical geometry.
- 517 Differential and integral calculus. Analysis.
- 519 Probabilities.
- 519.6 Errors of observation. Mean or probable values.
(See Mechanics 531.7 Measurement.)
- 52 **ASTRONOMY.**
- 521 Theoretical Astronomy. Mechanics of the
heavenly bodies.

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Practical Astronomy.**Observatories.****Telescopes.**(See Optics 535.83.
Manufacture 681.412.)

Reflector.

Refractor.

Ocular and accessories.

Objective.

Mountings, tubes, etc.

Equatorial mountings.

Mountings for fixed transit instruments

Observation chairs.

Celebrated telescopes.

Meridian Instruments.

Line of the meridian.

Mural circle.

Meridian circle.

Erection.

Collimation (constants).

Level (constants).

Azimuth (constants).

Other constants, flexure, error of graduation, etc.

Extra-Meridian Instruments.

Sextant and quadrant, astrolabe.

Altazimuth.

Zenith telescope.

Extra meridian transit.

Heliometer.

Equatorial.

Prime Vertical.

Auxiliary Instruments.

Sidereal pendulum, chronometers.

Electrical chronometer.

Micrometers.

Apparatus for personal equation.

Illuminating apparatus.

Instruments for solar observations.

Artificial horizons.

Heliostats

- 522.6 Auxiliary observations. Various methods of observation.**
- .62 Photometry.
(See Optics 535.24.)
- .63 Photography.
The photographic study of celestial bodies considered individually is classed with those bodies under the respective divisions of 523.
Ex. 523.79 *Photography of the Sun.*
- .65 Polarisation.
(See Optics 535.5.)
- .67 Spectroscopy of the Stars.
(See Optics 535.84.)
Only general studies on spectroscopy are classed here. The spectroscopic study of celestial bodies individually considered is classed with those bodies under the respective divisions of 523.
Ex. 523.77 *Solar spectrum.*
- 523 Descriptive Astronomy.**
- 525 The Earth.**
- .1 Constants.
- .2 Physics of the globe.
- .21 Heat.
- .22 Light.
- .23 Terrestrial or atmospheric electricity.
- .24 Terrestrial magnetism.
- .25 Seismic movements.
- 526 Geodesy. Geodesic operations.**
- .1 Theory and determination of the figure of the earth.
- .2 Measurement of bases.
- .3 Triangulation and Levelling.
- .33 Observations, instruments and archives. Levels.
(See 532.291 Theory of Levels.)
- .9 Topography. Surveys.
(See 623.71 Military topography.)
- .91 Instruments and methods. Chains, goniographs, goniometer, compass, protractor, theodolite.
(See 531.742 Theory of theodolite.)
- .92 Measurement of distances. Telemeter.
(See Artillery 623.462.5 Telemeter.)
- .93 Measurement of angles.
- 527 Nautical Astronomy. Navigation.**
- 529 Chronology.**
- .7 Measurement of Time.

53 PHYSICAL SCIENCES. (Rational mechanics and physics.)

The analytical subdivisions which are characterised by the single **o**, without parenthesis (the table of which is given below) can be used throughout the whole extent of the division 53, in order to express the special points of view under which a determined phenomena or its diverse manifestations are studied or regarded, but they should not be used when a special subdivision has been provided to this effect.

- .o Special analytical subdivisions.**
- .01 Theory and nature of the phenomenon.**
- .02 General Laws of the phenomenon.**
- .03 Production and causes of the phenomenon.**
- .04 Action and effects of the phenomenon.**
- .05 Observation and registration of the phenomenon.**
- .06 Application and utilisation of the phenomenon.**
- .07 Various apparatus for the realisation or study of the phenomenon.**
- .08 Measures of the phenomenon.**

53I Mechanics.

- .I Kinematics.**
- .2 Statics and graphical statics.**
- .3 Dynamics. Movement of a point.**
- .32 Vibratory movement.**
- .4 Work and Friction.**
- .5 Gravity. Ballistics.**
- .6 Conservation of Energy.**
- .7 Measurement of fundamental magnitudes, geometrical and mechanical.**
- Instruments and methods. Units.**
- (See 519.6 Errors of observation.)
- .71 Measurement of length.**
- (See Optics 535.417 Interferometers.)
- .714 Micrometers. Measuring machines.**
- .715 Other instruments of precision.**
- (For measurements based on the wave length of light see 535.417.)
- .716 Industrial apparatus.**
- .717 Measurement of thickness. Spherometer.**
- (See Physiology 612.842.61 Ophthalmometer.)
- .72 Measurement of surfaces.**
- .73 Measurement of volumes.**

- 531.74 Measurement of angles.
(See Optics 535.315 Prisms.)
- .741 Protractors. Goniometers.
- .742 Direct measurement. Theodolites.
(See Topography 526.91.)
- .743 Measurement by reflection.
- .75 Measurement of mass and density.
- .76 Measurement of time, velocities and accelerations.
- .77 Measurement of angular velocity. Stroboscopy.
- .78 Measurement of forces, work and pressures.
- .79 Other measuring apparatus.
- 532 **Liquids. Hydrostatics. Hydraulics.**
- .1 Properties of liquids. Pressures.
- .2 Equilibrium of liquids.
- .29 Various applications.
- .291 Levels. Bubbles.
(See Geodesy 526.33 Levels.)
- .3 Floating bodies.
- .4 Specific weight. Hydrometers.
- .41 Density of solids.
- .42 Density of liquids.
- .5 Movement of liquids. Hydraulics.
- .6 Capillary action.
- .7 Osmosis. Absorption. Solution.
- .8 Applications. Hydraulic machines.
- 533 **Gases. Pneumatics.**
- .1 Properties of gases and vapours.
- .11 Specific mass of gases. Mass of the litre of air.
- .2 Elasticity and compressibility of gases.
- .3 Atmosphere.
(See Meteorology 551.5.)
- .31 Barometer height.
- .32 Atmospheric pressure.
- .33 Diminution of pressure with height.
- .331 Measure of altitude by the barometer. Alti-
meter.
- .332 Reduction to sea level.
(See 533.42.)
- .34 Other variations.
- .35 Phenomena due to atmospheric pressure.
- .36 Stellar atmospheres.
(See Astronomy 523.)

533.4

Barometers.

- .41 Liquid barometers. Mercury, etc.
- .42 Corrections and reduction of liquid barometers.
(See 533.332.)
- .43 Aneroids.
- .44 Barographs.
- .45 Hypsometric thermometers.
- .46 Other forms of barometers. Gravity barometers.

.5 **Air pumps and the rarefaction of gases.**

(See 621.5 Application of compressed and rarefied air.)

- .51 Piston pumps. Pneumatic and compression machines.
- .52 Mercury pumps. Geissler type.
- .53 Pumps. Sprengel type.
- .54 Velocity pumps. Water, Mercury, etc.
- .55 Experiments relative to vacua.

.6 **Aeronautics.**

534

Sound. Acoustics.

- .1 Wave theory. Vibrations of bodies.
- .2 Propagation of sound. Velocity. Diffraction.
- .3 Sonorous sensations. Musical sounds.
- .4 Analysis of sounds and of vibratory movements.
Resonators.
- .5 Composition of vibrations.
- .6 Graphical and mechanical representations.
- .7 Physiological acoustics. Ear and larynx.
Audition and phonetics.
- .8 Applications.

535

Light. Optics.

- .07 Optical apparatus in general. Optical bench.
- .1 **Theory.**
- .11 Emission theory.
- .12 Undulatory theory. Wave theory.
- .13 Electromagnetic theory.
(See 538.56 Electrical oscillations.)
- .2 **Propagation. Velocity. Photometry.**
- .21 Various effects of radiations.
- .211 Thermal effects.
(See Heat 536.4.)
- .212 Luminous effects.

- 535.213 Chemical effects.
(See Photography 77.012.)
- .214 Mechanical effects. Radiometer. Radiation pressure. Mechanical Equivalent of Light.
(See Electrical Engineering 621.327.5 Radiometers.)
- .215 Electrical effects.
- .22 Velocity of propagation.
- .221 Astronomical methods.
- .222 Terrestrial methods. Velocity in different media.
- .223 Indirect methods.
- .224 Influence of the movement of the source. Aberration and Moving Media. Doppler's Principle.
- .23 Radiation energy.
(See Meteorology 551.521.1 Solar radiation.
Astronomy 523.7 The Sun.
Heat 536.521 Optical Pyrometry.)
- .231 Total Energy. Temperature Law of Radiation. Radiation of Black Bodies.
- .232 Partition of Energy in the Spectrum.
- .24 Photometry.
(See Astronomy 522.62, 535.35.
Electrical Engineering 621.325.5 Photometry of arc lamps.
621.326.2 Photometry of incandescent lamps.
681.415 Manufacture of photometers.)
- .241 Standards. Units of Light.
(See Heat 536.521 Optical Pyrometry.)
- .242 Photometers. Bunsen's Photometer.
- .243 Spectrophotometers.
- .244 Polarimetric methods.
- .245 Measure of Illumination. Brightness.
(See 535.736 Visual field.)
- .246 Stellar photometry.
- .3 **Reflection. Refraction. Absorption.**
- .31 Geometrical Optics. Analytical methods.
(See 681.42 Manufacture of Optical elements.)
- .311 Rectilinear propagation. Shadows.
- .312 Reflection. Plane mirrors.
- .313 Spherical mirrors. Curved mirrors. Aberrations. Caustics. Magic mirrors.
- .314 Refraction. Refraction caustics. Atmospheric refraction. Mirage. Transmission through heterogeneous media.
(See Meteorology 551.593.)

- 535.341 Measurement of Absorption Coefficients.
 .342 Absorption Spectra.
 (See Physiology 612.111.15 Spectroscopy of the blood.)
- .35 Emission. Radiation. Photophone. Radiophone.
 Illuminating power. Chemical Luminescence.
 (See 535.24 Photometry.)
- .36 Diffusion. Surface brightness.
 (See 535.43 Scatter by small particles.)
- .37 Phosphorescence and Fluorescence. Balmain's
 Paint. Luminous paint.
 (See Physiology 612.772 Phosphorescence.
 Zoology 59.11.99 Phosphorescence.)
- .371 Fluorescent screens.
- .372 Effects of X-rays and Röntgen rays.
 (See Electricity 537.531 X-rays.)
- .38 Photochemistry.
- .4 **Interference. Diffraction. Scattering.**
- .41 Interference.
- .411 Interference apparatus.
- .412 Visibility and location of fringes.
- .413 Achromatism of interference.
- .414 Interferential Refractometers.
 (See 535.322 Refractometers.)
- .415 Colours of thin isotropic plates.
- .416 Stationary waves. Photography of colour.
 (See Photography of colour 77.86.)
- .417 Applications. Parallelism and Planeness by
 interference. Interferometers.
 Interferometers are indexed in relation to their
 specific use by means of the :.
 Ex. 535.417 : 578.2 *Interferometer for testing the
 optical system of microscopes.*
 (See Measurement 531.715 Length.)
- .42 Diffraction.
- .421 Plane waves. Gratings. Normal spectrum.
 (See Spectroscope 535.84.)
- .422 Spherical waves.
- .423 Cylindrical waves. Graphic method.
- .424 Diffraction in Optical Instruments. Definition
 of Optical Instruments. Resolving power of
 optical instruments. General theory.

- 535.43 Diffraction by small particles. Optical Resonance.
Scatter. Tyndall effect.
(See Optics 535.36 Diffusion.
Chemistry 541.81 Colloids.
Electrical Engineering 621.327.3 Mercury lamp.)
- .43.07 Nephelometer. Tyndallmeter.
- .431 Colour and Polarisation of the sky.
(See Meteorology 551.593.7 Polarisation.)
- .432 Rainbows. Haloes. Theory.
(See Meteorology 551.593.6 Optical phenomena.)
- .433 Interference of scattered or diffracted rays.
- .5 **Polarisation. Polariscopes. Double Refraction.**
Same subdivisions as for 535.33.
(See Crystallography 548.9 Optical properties of crystals.
Astronomy 522.65.)
- .51 Polarisation.
- .511 Instruments and Methods. Spectropolariscope.
Polariscope.
- .512 Interference of Polarised Light.
- .513 Direction of vibrations.
- .514 Production of polarised radiation by Reflection,
Emission, Diffraction, Double Refraction, etc.
- .52 Uniaxial Crystals.
- .521 Wave surface.
- .53 Biaxial Crystals.
- .531 Wave surface.
- .532 Conical Refraction.
- .54 Chromatic Polarisation.
- .541 Elliptic vibrations.
- .542 Apparatus.
- .543 Colour of thin crystalline plates.
- .543.1 In parallel light.
- .543.2 In convergent light.
- .544 Measurements of crystal constants. Crystallo-
graphic Optics.
- .545 Dispersion of axes.
- .546 Polychroism. Pleochroism.
- .547 Irregular Crystals. Brushes of Crystals.

- 535.548 Applications.
 .548.1 Comparators.
 .548.2 Photometry.
 .548.3 Microscopical study of rocks.
 (See 552.8 Petrographic microscopy.)
- .55 Refraction in Strained Media.
 .551 By compression.
 .552 By chilling.
 .553 Electrical Double Refraction.
- .56 Rotatory Polarisation.
 .561 The study of Quartz.
 .561.1 In parallel light.
 .561.2 In convergent light.
 .562 Elliptic and circular Polarisation. Interference.
 (See 535.573.)
 .563 Rotatory Power and Double Refraction.
 .564 Properties of groups of plates.
 .565 Crystals endowed with Rotatory Power.
 .566 Amorphous bodies endowed with rotatory power. Molecular rotatory polarisation.
 .566.1 In gases.
 .566.2 In liquids.
 .566.3 In solids.
 .567 Magnetic rotatory polarisation.
 (See 538.61 Magnetism.)
- .568 Applications.
 .568.1 Polariscopes. Babinet Compensator.
 (See 681.416 Manufacture of polariscopes, etc.)
 .568.2 Saccharimeters. Polarimeter.
- .57 Reflection. Refraction and Absorption.
 (See Molecular Physics 539.63 Polish.)
 The following subdivisions can be added to 535.57 by means of the hyphen:
 -1 Polarised light.
 -2 Natural light.
 -3 Partially polarised light.
 -4 Total reflection.
 -5 Crystalline reflection.
- .57.01 Dynamical theory.
 .571 Transparent bodies.
 .572 Selective Reflection and Absorption, including objective colours. Dichroism. Anomalous Dispersion.

- 535.573 Metals.
(See 535.562.)
- .58 Dispersion.
(See 535.32.)
- .581 Isotropic bodies.
- .582 Crystals.
- .583 Relation of Refraction, Dispersion and Absorption to Chemical Constitution. Optical Glass.
(See Industry 666.22 Optical Glass.)
- .6 **Colour.**
- .61 Wave length in visible and invisible spectrum. Measurement.
- .62 Composition of colours. Colorimeter.
(See 535.733.4.
Physiology 612.843.31 Colour Vision.)
- .63 Colours produced by interference. Scale of Tints.
- .64 Colours produced by the phenomena of polarisation.
- .65 Colour photography.
(See Photography 77.86 Colour Photography.)
- .7 **Physiological Optics. The Eye.**
- .7.08 Interocular distance.
- .71 Rôle of the Cornea and Aqueous Humour.
- .72 Rôle of the Iris.
- .73 The Retina and Optic Nerve.
- .731 Visual purple.
- .732 Irradiation.
- .733 Chromatic Sensibility.
- .733.1 Colour Vision. Chromoptometer.
(See Physiology 612.843.31 Colour Vision.)
- .733.3 Daltonism. Colour blindness.
(See Psychology 152.1 Daltonism.
Physiology 612.843.33 Daltonism.
Ophthalmology 617.755 Daltonism.
Railways 656.251 Daltonism.)
- .733.4 Mixture of colours.
(See 535.62.)
- .733.5 Contrast of colours.
- .735 Persistence of Visual Impressions. Entoptic Phenomena. After Images. Haidinger's Brushes.
(See Physiology 612.843.4/5.)
- .735.1 Applications.

- 535.736 Visual Field. Visual Acuity. Glare. Anti-glare. Protective filters. Recognition of detail. Scotometer.
(See 535.245 Brightness.
535.34 Absorption.
Physiology 612.843.6 Visual field. Acuity.
Aeronautics 629.13.062.21 Glare.
Photography 77.135.6 Light filters.)
- .74 Crystalline and Vitreous Humours. Dioptrics of the Eye.
- .741 Change of curvature of the Lens.
(See 535.754 Presbyopia.)
- .75 Defects of the Eye and their Correction. Ametropia. Anisometropia. Trial Case. Ophthalmological instruments.
(See Ophthalmoscope 612.843.12.
Physiology 612.845.
Ophthalmology 617.75.)
- .751 Myopia. Brachymetropia.
- .752 Hypermetropia.
- .753 Astigmatism.
(See Physiology 612.845.3 Astigmatism.
Ophthalmology 617.757 Astigmatism.)
- .754 Presbyopia.
- .76 Movements of the Eye. Accommodation.
- .762 Binocular Vision. Magnitude and Distance of Objects.
(See 535.767 Stereoscope.
Physiology 612.846.2 Binocular vision.)
- .767 Notion of Relief. Stereoscopy. Stereoscope.
(See 535.762 Binocular vision.
Physiology 612.846.7 Stereoscopy.
Photography 77.84 Stereoscopy.)
- .8 Applications. Optical Instruments.
- .81 Optical glasses. Lenses and prisms. Aplanatic Lens. Focometer. Dioptriometer.
- .82 Magnifying glasses and Microscopes. Measuring microscopes. Reading microscopes.
(See Microscopy 578.)
- .83 Spectacles. Telescopes. Field Glasses. Binoculars.
(See Astronomy 522.2 Telescopes.
535.318 Objectives and Oculars.
Artillery 623.462.1 and 623.462.4.
Manufacture 681.41.)

535.84

Spectroscopy and Spectroscopic Analysis. Spectrometer.

(See Astronomy 522.67 Spectrum Stars.

523.37 Spectrum Moon.

523.57 Spectrum Meteors.

523.67 Spectrum Comets.

523.77 Spectrum Sun.

Refractometry 535.322 Spectroscope.

Emission Spectra 535.33.

Absorption Spectra 535.34.

Diffraction 535.421 Grating. Normal spectrum.

Chemistry 544.6 Spectrum analysis.

Physiology 612.111.15 Spectroscopy of the Blood.

Manufacture 681.414 Spectroscopes.)

.85

Photography. Photographic lenses and systems.

(See Photography 77.135 Objectives.)

.86

Other Applications of Prisms and Lenses. Camera Lucida. Periscopes.

(See 535.319 Theory of Periscopes.)

.87

Mirrors and Reflection Apparatus. Collodion film mirrors.

(For Optical Telegraphy see 65.491.)

.88

Optical Apparatus of Lighthouses. Projectors. Searchlights.

(See Munitions 623.731 Field projectors.

Engineering 627.92 Lighthouses.

Autocars 629.113.018 Headlamps.

Navigation 656.61.

Photography 77.82 Projection.)

.89

Other Applications. Lighting apparatus. Illuminants. Lamps.

(See Heat 536.451 Incandescent Mantles.

Photography 77.144 Lamps.

77.823 Projection light sources.)

.9

Exercises. Problems. Numerical Tables.

536

Heat.

.1

Theory. Nature of heat.

.2

Conduction.

.3

Action of bodies on heat.

.4

Action of heat on bodies.

(See Light 535.211.)

.41

Dilatation. Theory.

.411

Gases.

.412

Liquids.

.413

Solids.

.45

Incandescence.

- 536.5 **Temperature.**
 .51 Thermometry.
 .52 Pyrometry.
 .521 Optical methods.
 (See 535.23 Radiation energy.
 535.241 Standards.)
 .522 By change of state. Meldometer.
 .6 Calorimetry.
 .7 Thermodynamics.
 .8 Applications.
- 537 **Electricity.**
 .1 Theory. Nature.
 .2 Statical electricity.
 .3 Electrokinetics.
 .4 Atmospheric electricity.
 .5 Dynamic electricity.
 .7 Electrical measurements.
 .8 Applications.
- 538 **Magnetism and Electromagnetism.**
 .1 Theory.
 .2 Influence. Contact.
 .3 Electromagnetism and electrodynamics.
 .4 Diamagnetism.
 .5 Induction. Variable current.
 .6 Various actions of the magnetic field.
 .61 Magnetic rotatory polarisation.
 (See Light 535.567.)
 .7 **Terrestrial Magnetism.**
 .71 Measurement of constants.
 .711 Intensity of the field.
 .712 Declination.
 .713 Inclination.
 .72 Earth Currents.
 .73 Magnetic storms.
 .74 Compasses. Regulation. Compensation.
 .79 Distribution on the globe. Magnetic charts.
 .8 Applications of Magnetism.

539

Molecular Physics.

- .1 Theory. Molecular structure.
- .2 Properties of solids.
- .3 Elasticity. Torsion.
- .4 Resistance of materials.
- .5 Permanent deformation.
- .6 Intramolecular forces.
- .63 Surface flow. Polish.
(See Glass 666.163 Polishing Plate.
Optical Trade 681.42 Polishing.)

54

CHEMISTRY.

543/5

Chemical analysis.

544

Qualitative analysis.

- .6 Spectrum analysis.
(See Optics 535.333 Spectra of compounds.
535.84 Spectroscopy.)
- .7 Polariscopic methods.
(See Optics 535.5 Polarisation.)
- .8 Microscopic methods. Chemical microscopy.

545

Quantitative analysis and synthesis.

- .8 Optical methods.

548

Crystallography.

- .9 Optical properties of crystals.
(See Optics 535.5 Polarisation.)
- .91 Theory of double refraction.
- .92 Polarisation.
- .93 Circular polarisation.
- .94 Accidental double refraction.
- .95 Polychroism.
- .96 Optical anomalies.
- .97 Optical constants.
- .971 Methods of determination.
- .972 Values and variation of optical constants.

549

Mineralogy.

- .6 The Silicas.
- .63 The Silicates.
- .634 The Micas.

- 55 GEOLOGY.**
- 551 Physical geology. Physics of the globe.**
- .5 **Meteorology.**
 - .52 Thermometry. Temperature.
 - .521 Radiation.
 - .521.1 Solar.
(See Light 535.23 Radiation energy.)
 - .57 Hygrometry. Humidity.
 - .593 Optical phenomena.
(See Optics 535.314 Atmospheric refraction.)
 - .593.1 Mirage.
 - .593.2 Scintillation.
 - .593.3 Deformation of stars.
 - .593.4 Telluric lines of spectra.
 - .593.5 Twilight. Alpenglühn.
 - .593.6 Optical phenomena produced by condensation.
(See Light 535.432 Rainbow. Haloes.)
 - .593.61 Brocken spectre. Glories.
 - .593.62 Rainbow.
 - .593.63 Haloes. Parhelia. Paraselenae.
 - .593.64 Coronas.
 - .593.65 Colour of clouds. Iridescent clouds.
 - .593.66 Luminous clouds.
 - .593.67 Double, blue, green sun.
 - .593.7 Polarisation.
(See Light 535.431 Polarisation of the sky.)
 - .593.8 Transparency of the air. Intensity of luminous diffusion.
 - .593.9 Refraction.
 - .594 Electrical phenomena.
 - .595 Acoustic phenomena.
- 552 Lithology. Petrography. Petrology.**
- .4 **Metamorphic rocks.**
 - .45 Quartz.
 - .8 **Petrographic microscopy.**
(See Optics 535.548.3 Microscopical study of rocks.)
 - .81 Determination of mineral rocks.
 - .82 Structure of rocks.

- 553 **Economic Geology.**
 .8 **Gems. Ornamental and precious stones.**
- 56 **PALAEONTOLOGY.**
- 57 **BIOLOGY. EVOLUTION. LIFE.**
- 578 **Microscopy.**
 (See 681.413 Manufacture of microscopes.)
- .1 **Various kinds of microscopes.**
- .11 Projection microscopes.
- .12 Simple microscopes.
- .13 Compound microscopes.
- .2 **Optical systems of the microscope.**
 (See Optics 535.82 Microscopes.
 Photography 77.831 Photomicrography.)
- .21 Reflectors.
 (See 578.5 Sources of illumination.)
- .22 Objectives.
 (See Optics 535.318 Theory of objectives.)
- .24 Immersion.
- .25 Aberration and correction.
 (See Optics 535.317 Theory of Aberrations.)
- .27 Ocular.
 (See Optics 535.318 Theory of oculars.)
- .28 Power of compound microscopes.
- .3 **Mechanical systems of the microscope Body.**
 Stand. Special supports.
- .4 **Various accessories of the microscope. Tables.**
 Slide cabinets.
 (See 531.714 Micrometer.
 531.741 Goniometer.
 535.322 Spectroscope.
 535.568.1 Polariscopes.
 77.831 Photomicrography.)
- .5 **Luminous sources for the microscope. Dark**
 and transparent field. Reflectors. Condensers.
 Lamps, etc.
 (See 578.21 Reflectors.)
- .6 **Technical methods. Preparation and mounting**
 of objects.
- .62 Examination. Methods of interpretation. Errors.
- 58 **BOTANY.**

59 ZOOLOGY.

- .11 Physiology.
- .11.8 Functions of the nervous system.
- .11.85 The senses. Tropisms.
- .11.856 Sight. Heliotropism. Phototropism.
- .11.99 Photogenic function. Phosphorescence. Lu-
minosity.
(See Light 535.37 Phosphorescence.)
- .14 Organology. Anatomy.
- .14.8 Nervous system.
- .14.84 Organs of sight. Eyes. Retina.

6 APPLIED SCIENCE.

General Divisions.

6 [(o), "...", "=", ":] Generalities.

6 ...oo Common analytic subdivisions, permitting the specification of points of view from which the questions treated are regarded.

60 Various questions.

61 Medicine.

62 Engineering, Technology, Civil and Military Engineering, Mechanical industries.

63 Agricultural sciences, Agriculture, Zootechnology, Hunting and Fishing.

64 Domestic economy. Technics of domestic life.

65 Technics of commerce, communications, and transports.

66 Chemical industry, Metallurgy.

67 Manufactures and manufactured products.

68 Professions and trades.

69 Technics of construction and other industries.

6 (oo) Special subdivisions of form.

The employment of the following subdivisions is optional. They are applicable throughout the whole of the division 6 APPLIED SCIENCE with the exception of 61 MEDICINE.

(001) Statistical documents.

(002) Inventories. Cost price.

(003) Contracts, conventions and specifications of tenders.

(004) Plans and projects, drawings, estimates and statements.

(005) Instructions for construction.

(006) Working. Employment of material. Preservation and upkeep. Prescriptions relative thereto.

(007) Rules and instructions on service.

(008) Patent specifications.

(009) Reports on the service, trials and working of material. History relative thereto.

60 VARIOUS QUESTIONS.

606.4 Universal exhibitions.

608 Inventions.

6I MEDICINE.

6II Anatomy.

6I2 Physiology.

- .8 The Nervous system.
- .84 Physiological Optics. Vision.
- .84I Cornea and conjunctiva.
- .842 Iris. Choroid. Ciliary body. Accommodation.
- .842.I Accommodation.
(See 6I2.844. I.)
- .842.II Pupillometers.
- .842.2 Action of the nerves and nervous centres on the pupil.
- .842.3 Effects of light.
- .842.4 Action of atropine and poisons on the iris.
- .842.5 Choroid and pigments of the eye.
- .842.6 Intra-ocular pressure and ocular circulation.
- .842.6I Ophthalmometers.
(See Physics 531.717 Measurement of curvature.)
- .843 Optic nerve. Retina and retinal function.
- .843.I Visual purple. Visual fatigue.
- .843.II Photography of the retina. Photograms.
- .843.I2 Retinoscopy. Ophthalmoscope.
(See Optics 535.75 Ophthalmological instruments.)
- .843.I3 Retinal circulation.
- .843.2 Irradiation.
- .843.3 Chromatic sensibility and contrast of colours.
- .843.3I Colour vision.
(See Optics 535.733. I Colour vision.)
- .843.32 Chromatic sensibility.
- .843.33 Daltonism and disturbances of the chromatic sensibility.
(See Optics 535.733.3.)
- .843.34 Mixture of colours.
- .843.35 Contrast of colours.
- .843.4 Entoptic phenomena. Muscae volitantes. Phosphenes.
(See Optics 535.735.)

- 612.843.5 Persistence of visual impression.
(See Optics 535.735.)
- .843.6 Visual field. Visual acuity. Photometry.
(See Optics 535.736.)
- .843.61 Photometric technique.
- .843.62 Measure of the visual field.
- .843.63 Measure of visual acuity.
- .843.7 The nervous apparatus of vision.
- .843.71 Rôle of the optic tracts.
- .843.72 Visual perceptions.
- .843.73 Chromatic audition.
- .843.74 Visual judgments and illusions.
- .843.75 Observation on the congenitally blind.
- .843.78 Degeneration of the optic nerve.
- .843.79 Degeneration of the optic tracts.
- .844 Crystalline and Vitreous Humours.
- .844.1 Change of curvature of the lens
(See 612.842.1.)
- .844.2 Ocular dioptrics.
- .845 Defects of the eye and vision.
(See Ophthalmology 617.75.
Optics 535.75.)
- .845.1 Myopia.
- .845.2 Hypermetropia.
- .845.3 Astigmatism.
(See Optics 535.753 Astigmatism.
Ophthalmology 617.757.)
- .845.4 Presbyopia.
- .845.5 Daltonism.
- .845.6 Hemeralopia. Day-blindness.
- .846 Movements of the eye.
- .846.2 Binocular vision.
(See Optics 535.762 Binocular vision.)
- .846.3 Function of the IIrd pair.
- .846.4 Function of the IVth pair.
- .846.6 Function of the VIth pair.
- .846.7 Notion of relief. Stereoscopy.
(See Optics 535.767 Stereoscopy.)
- .846.8 Strabismus. Diplopia. Esotropia.
(See Ophthalmology 617.761.)
- .847 Palpebral and Lachrymal apparatus.

617 External Pathology. Surgery.

- .7 Ophthalmology.
- .71 Conjunctiva. Cornea. Sclerotic.
- .711 Conjunctiva.
- .712 Cornea.
- .715 Sclerotic.
- .72 Iris. Choroid. Ciliary body.
- .721 Anterior chamber.
- .722 Uveal tract.
- .723 Iris.
- .723.002 Iritis.
- .723.0033 Coloboma.
- .723.0039 Hernia of the Iris.
- .724 Pupil.
- .725 Ciliary body.
- .726 Posterior chamber.
- .727 Choroid.
- .73 Optic nerve. Retina.
- .731 Optic nerve.
- .735 Retina.
- .735.8 Hemeralopia.
- .74 The crystalline and neighbouring parts.
- .741 The Lens.
- .741.5 Cataract.
- .744 Capsule of the Lens.
- .747 Vitreous humour.
- .749 The eyeball.
- .749.5 Glaucoma.
- .75 Defects of Vision.
- (See Optics 535.75.
- Physiology 612.845.)
- .751 Myopia.
- .752 Presbyopia.
- .753 Amblyopia.
- .755 Daltonism.
- (See Optics 535.733.3.)
- .756 Hypermetropia.
- .757 Astigmatism.
- (See Optics 535.753 Astigmatism.
- Physiology 612.845.3.)

- 617.76 Muscular Apparatus. Lachrymal apparatus.
 .761 Squint. Strabismus. Esotropia.
 (See Physiology 612.846.8.)
 .766 Lachrymal canal.
 .77 The eyelids.
 .78 The orbit and neighbouring parts.
 .9 **Operative Medicine.**
 .928 Prosthesis.
 .928.7 Artificial eye.
 .928.79 Glasses.
 (See Optics 535.83 Spectacles.)

62 ENGINEERING.

Civil and Military Engineering. Technology. Mechanical Industries.

General Divisions.

- 620 General questions.
- 621 General mechanical engineering. Mechanical industries.
- 622 Mineral industries. Mines and quarries.
- 623 Military and Naval engineering. War material.
- 624 Bridges and frame works. Metal structures.
- 625 Technics of roads and railroads.
- 626 Technics of canals and navigable ways.
- 627 Technics of hydraulic works. Ports and rivers.
- 628 Technics of Sanitary works.
- 629 Other branches of engineering.
- 629.1 Industries of locomotion (on Roads, by Water and Air).
- 629.2 Utilisation and transport of energy.

General Observations.

Documents of special forms which are frequently employed in works, in public services, or in large administrations, business houses and workshops, such as plans, inventories, specifications, instructions concerning the construction and employment of material, reports on working, as well as descriptions of patented apparatus, etc., can be specified by the special subdivisions (00) indicated under 6 (see p. 43).

621 Mechanical Engineering.

Principal Divisions.

- .0 Special analytic subdivisions.
- .1 Steam engines.
- .2 Hydraulic motors.
- .3 Electric machinery. Industrial Electricity.
- .4 Air and gas engines and various other motors.
- .5 Air Compressors. Freezing machines and apparatus.
- .6 Blowers and blowing engines. Pumps and machines for elevating and distributing or projecting liquids.
- .7 Factories and workshops. Installation and organisation.

- 621.8 Parts for the transmission and transformation of movements. Parts for translation, fixing and lubrication.
- .9 Machine tools and tools in general.
- 621.3 **Electrical machinery. Industrial Electricity. Applications of Electricity to Industry and the Arts.**
- .32 Electric lighting.
 (See 537.83 for the theoretical point of view.)
- .321 Electric Light central stations. Particular dispositions.
 (For general dispositions see 621.311.)
- .322 Wiring and distribution for electric light. Particular dispositions.
 (For general dispositions see 621.316.)
- .323 Distribution apparatus. Boards. Switches. Interrupters. Regulators.
- .324 Electric light apparatus. Various burners and lamps. Generalities. Mode of working.
 (For portable mine lamps see 622.49.)
- .325 Arc lamps. Different types. Regulators. Carbons and globes.
- .325.1 Open arc lamps.
- .325.2 Enclosed arc lamps. Pointolite lamps.
- .325.3 Arc carbons.
- .325.31 Simple carbons.
- .325.32 Composite carbons. Wick carbons.
- .325.4 Globes.
- .325.5 Photometry of arc lamps.
 (See Physics 535.24 Photometry.)
- .325.6 Luminous efficiency of the arc.
- .325.61 Continuous current.
- .325.62 Alternating current.
- .325.7 Theory of the arc.
- .326 Open or enclosed incandescent lamps. Different types. Bulbs. Filaments.
- .326.1 Carbon filament incandescent lamps. Description. Parts. Manufacture.
- .326.11 Bulbs.
- .326.12 Filaments.

- 621.326.13 Couplings and sockets.
- .326.14 Solders.
- .326.15 Production of vacua.
- .326.2 Photometry of incandescent lamps.
(See Physics 535.24 Photometry.)
- .326.3 Luminous efficiency.
- .326.4 Filament lamps other than carbon.
- .326.41 Platinum filament lamps.
- .326.42 Osmium lamps.
- .326.43 Carbide lamps.
- .326.44 Rare earth lamps; tungsten, molybdenum,
etc.
- .326.5 Theory of incandescent lamps.
- .327 Other systems of electric lamps and apparatus
of analogous manufacture.
- .327.1 Jablochkoff candles.
- .327.2 Nernst lamps.
- .327.3 Fluorescence lamps. Mercury vapour lamps.
(See Light 535.43 Optical resonance.)
- .327.4 Lamps for special radiations. Crookes' tubes.
- .327.5 Radiometers.
(See Physics 535.214 Radiometer.)
- .328 Electrical apparatus. Various contrivances.
(See 621.345 Electric lighting of mines.
625.233 Electric lighting of railway carriages.
644 Domestic electric lighting.
656.215 Electric lighting of railway stations.)
- .328.1 Electrical apparatus for arc lamps.
- .328.11 For exterior and large spaces. Public roads,
places, courses, halls and workshops. Py-
lons, candelabra, lanterns, etc.
- .328.12 For interiors and edifices. Apartments,
meeting halls. Electroliers. Brackets.
- .328.13 For theatres and scenery. Footlights.
Handlamps.
- .328.14 For temporary decorations. Public fêtes.
- .328.15 For signboards and projection apparatus.
- .328.2 Electrical apparatus for incandescent lamps.
- .328.21 For exteriors and large spaces.
- .328.22 For interiors and edifices. Electroliers.
Chandeliers, etc.

- 621.328.23 For theatres. Footlights. Handlamps. Organ stops.
- .328.24 For temporary decorations. Coloured lights.
- .328.25 For luminous signs—continuous and intermittent. Interrupting arrangements.
- .36 Thermo-Electricity.
- .361 Transformation of thermal into electrical energy and inversely. General laws. Applications.
- .362 Thermo-electric piles. Different types. Description.
- .363 Methods of using thermo-electric piles.
- .4 Air and Gas Motors, etc.
- .5 Applications of compressed and rarefied air. Refrigerating apparatus. Cold.
- .9 Machine tools and tools in general.
- .92 Polishing and grinding machines. Crushing, breaking and sifting apparatus.
- .921 Polishing materials. Sandstone. Pumice stone. Dolomite and emery. Mill stones and emery wheels. Carborundum. Emery paper and cloth. Polishing and burnishing. Burnishing powders, tripoli, etc.
- 623 Military and Naval Engineering. Munitions of War.**
- .4 Artillery.
- .425 Sighting mechanisms fixed to the piece.
- .425.1 Back sights. Fore sights. Sliding scales. Eyepieces, etc.
- .425.2 Sights. Front sights.
- .462 Instruments.
- .462.1 Sighting Instruments. Back sights. Levels. Clinometers. Rules and sketch boards. Gun-sighting telescope.
(See 623.425 mechanisms fixed to the piece.)
- .462.2 Precision instruments. Dial sight. Director.
- .462.3 Checking instruments.
- .462.4 Glasses.
(See Optics 535.83 Spectacles.)
- .462.5 Telemeters. Range-finders.
(See Geodesy 526.92 Telemeter.)

- 623.7 Various munitions of war. Application of science to military art.**
- .71 Military topography. Methods and special instruments.
(See 526.9 Topography in general.)
 - .72 Photographs. Methods of reproduction applied to military art.
(See 77 Photography.)
 - .73 Transmission of signals.
 - .731 Optical signals. Projectors.
(See Optics 535.88 Projectors.
65.49 Signals.)
- 627 Natural water courses. Ports and Sea Roads. Hydraulic works and maritime constructions.**
- .9 Approach to coasts. Lighthouses. Buoys and Signals.
 - .92 Lighting of coasts. Lighthouses. Position lights. Port lights. Staff and ball beacons.
(See Optics 535.88 Lighthouses.)
 - .921 Erection of lighthouses.
 - .922 Luminous intensity and nature of the light. Fixed lights. Eclipsing lights. Coloured lights. Visibility. Transparence of the atmosphere.
 - .923 Lighting apparatus. Optical and mechanical parts.
 - .928 Luminous buoys.
 - .93 Signals and semaphores.
(See Communication 65.49 Signals.)
- 628 Sanitary Engineering. Sewers, etc.**
- 629 Other Branches of Engineering.**
- .1 Locomotion. Transport Industry.
 - .11 Locomotion on Roads.
 - .12 Locomotion on Water.
 - .13 Locomotion by Air. Aeronautics.
- 63 AGRICULTURE.**
- 64 DOMESTIC ECONOMY.**
- 65 COMMERCE. COMMUNICATION AND TRANSPORT.**
- .4 Communication at a distance.

- 65.46 Telephony.
- .49 Various signals and other means of communication at a distance.
(See Munitions 623.731 Optical signals.
627.93 Semaphores.)
- .49I Optical Telegraphy. Chappe system. Helio-
graphy. Lamp signalling.
(See Optics 535.87 Reflection apparatus.)
- .9 Various.
- .9I Publicity. Advertisement.
- 66 **CHEMICAL INDUSTRY AND METAL-
LURGY.**
- 66I Industry of chemical products properly so
called.
- .75 Metallic carbides.
- .75I Carbide of Silicon or Carborundum.
- .75I.2 Manufacture by the aid of electric furnaces.
- 665 **Lighting Industry. Oils. Gas. Candles, etc.**
- 666 **Glass and Pottery Industry. Cements.**
- .I Glass manufacture. Uncoloured glasses. White
glass.
- .II Glass. Origin. Composition. Physical properties.
Different kinds. Classification. Glasses without
lead. Soluble glass. Glass slabs, hollow glass,
moulded glass. Lead glasses. Crystal, optical
glasses, enamel. Coloured glasses.
- .I2 Materials employed in the manufacture of glass.
Nature. Origin. Preparation. Ingredients: Silica,
alkalis, silicates, etc. Decolourising substances.
Glass waste, broken glass.
- .I3 The fusion of glass. Apparatus employed. Imper-
fections of the glass. Crucibles. Covered pots.
Ladles. Furnaces. Furnaces of Siemens, Boetius,
Flemsburg, Richter.
- .I4 Manufacture of leadless glasses.
- .I5 Sheet glass.
- .I6 Plate glass. Silvering of glass.
(See 686.7 Manufacture of mirrors.)
- .I6I Blowing of plate.
- .I62 Running of plate. Running table.

- 666.163 Polishing.
(See Physics 539.63 Polish.)
- .164 Quicksilvering of polished glass.
- .165 Silvering of glass.
- .166 Platinising glass.
- .167 Gilding glass.
- .168 Coppering glass.
- .17 Hollow glass ware.
- .18 Hardened glass. Bathie, Siemens processes.
- .2 **Lead glasses. Crystal. Optical glass. Enamels and coloured glasses.**
- .21 Crystal or cut-glass.
- .22 Optical glasses. Properties. Composition.
(See Optics 535.583 Optical glass.)
- .221 Fusion of optical glasses.
- .222 Pouring and annealing.
- .223 Moulding.
- .224 Cutting.
- .28 Engraving glass.
- .281 By cutting wheel.
- .282 By hydrofluoric acid.
- .283 By sand. Sandblasting.
- 667 Bleaching. Colours. Varnishes. Inks.**
- .6 **Colours and Paints.**
- .67 Staining wood, metal, stones, liquids.
- .673 Colouring metals.
- .673.1 Electrically.
- .673.2 Chemically.
- .673.3 By heat.
- 668 Various organic chemical industries. Soap. Glycerine. Resins. Perfumes, etc.**
- .4 **Gums. Resins. Glues.**
- .46 Terebinthines.
- .466 Canada Balsam.
- .47 Terebinthine products. Pitch. Spirit.
- .471 Pitch. Bitumen.

669

Metallurgy.

- .1 Iron, cast iron and steels.
- .2 The precious metals.
- .3 Copper and its alloys.
- .4 Lead and its alloys.
- .5 Zinc and its alloys.
- .6 Tin and its alloys.
- .7 Other metals and metals forming alloys.
- .715 Aluminium and its alloys.
- .8 Furnaces and combustibles.
- .9 Analysis of metals and mineral substances.

67

VARIOUS INDUSTRIES AND MANUFACTURES.

68

OTHER INDUSTRIES AND TRADES.

681

Fine mechanism. Instruments of precision. Clock and Watch making. Musical instruments.

.2

Scientific instruments in wood or metal.

All that which is concerned with the manufacture of instruments used in the pure and applied sciences, for observation, measurement or registration, is classed in this division. Information concerning the manufacture of instruments made entirely of glass is classed in the following division 681.3.

The classification of these instruments, the list of which is added to every day by new applications, is established according to the actual application by the sign of relation. Thus:

681.2 : 531.71 *Manufacture of linear standards.*

681.2 : 531.781 *Manufacture of dynamometers.*

Everything which concerns the scientific theory of these instruments or the methods of using them is always classed under each particular instrument. Thus, for example, the theory and methods of using dynamometers is classed under 531.781.

.3

Apparatus in blown glass.

The method of forming compound numbers as described under 681.2 is also used in this group.

.4

Optical Instruments. Optical Trade.

The method of forming compound numbers as described under 681.2 is also used in this group. Thus:

681.4 : 522.2 *The manufacture of astronomical telescopes.*

(See Optics 535.8 Instruments.

Photography 77.13 Cameras and objectives.)

.41

Different kinds of optical instruments. Graticules.

.411

Spectacles. Eyeglass.

.412

Instruments for distant observation. Telescopes. Field glass. Binocular.

- 681.413 Instruments for magnification. Lenses. Microscopes.
(See 578 Microscopy.)
- .414 Spectroscopes.
(See Physics 535.84 Spectroscopy.)
- .415 Photometers.
(See Physics 535.24 Photometry.)
- .416 Polariscopes. Polarimeters.
(See Physics 535.568.1 Polariscopes.)
- .42 Optical glasses. Glasses for Oculists. Plate glass. Mirrors. Prisms. Lenses. Optical grinding and polishing. Glass-working tools. Test plates.
(See Physics 535.31 Geometrical Optics.
Physics 539.63 Polish.
Engineering 621.921 Abrasives and polishing materials.
Industrial Chemistry 661.751 Carborundum.
Glass Industry 666.163 Polishing plate.
666.22 Optical glass.
668.471 Pitch.)
- .43 Mountings and brasswork. Optical Screw.
- .44 Setting up and adjusting.
- 682 Smithy work.
- 683 Ironmongery. Locksmith's trade. Gunsmith.
- 684 Carriage building. Cabinet work. Carpentry de luxe.
- 685 Saddlery. Boot and shoe making.
- 686 Bookbinding. Mirror making. Stationery.
- .7 Mirror manufacture.
(See 666.16 Plate glass and silvering.)
- .71 Hand mirrors. Portable mirrors. Pocket mirrors.
- .72 Mirrors for furniture. Framed mirrors.
- .73 Panels in silvered plate.
- .74 Curved mirrors. Spherical, concave and convex. Cylindrical. Conical.
- .77 Garden balls. Reflectors. Spying glasses.
- 687 Clothing. Tailoring. Hatmaking.
- 688 Various small industries. Buttons. Artificial flowers. Fans. Etc.

- 69 BUILDING TRADE.
- 691 Building materials.
- 692 Plans. Estimates.
- 693 Masonry. Plaster work.
- 694 Carpentry.
- 695 Roofing.
- 696 Plumbers work. Gas and steam apparatus.
- 697 Heating. Ventilation.
- 698 Painting. Glazier's work. Papering.
- 699 Construction of wagons, boats.

7 THE FINE ARTS.

- 71 ARCHITECTURE OF GARDENS AND SITES.
- 72 ARCHITECTURE. MONUMENTAL ART.
- 725 Civil Architecture. Public Buildings.
- .4 Industrial architecture. Factories. Workshops.
- 727 Buildings relative to learning, to the sciences and to letters.
- .5 Scientific laboratories.
- .6 Scientific museums.

73 SCULPTURE.

- 736 Gems. Cameos.
- 737 Coins. Medals.
- 738 Ceramic Art. Pottery. Porcelain.

74 DRAWING. DECORATIVE ART.

- 744 Linear and Geometric Drawing. Mathematical, scientific, industrial and technical drawing. Machine drawing.
- .5 Linear drawings obtained, reproduced or reduced by mechanical processes. Reproduction of plans.

75 PAINTING.

76 ENGRAVINGS. PRINTS. ILLUSTRATION. LITHOGRAPHY.

(See 77.4 to 77.7 Photographic processes of reproduction.)

- 764 Chromolithography.

PHOTOGRAPHY.

A. Everything which concerns photography and the photographic sciences will be classed in this division, except those works concerning physical and chemical theories of photography more specially written from the point of view of physics and chemistry; these works will find a place in the divisions 53 and 54 devoted to these sciences. The applications of photography, which are not specially provided for in the division 77.8 can be classed under this division by aid of the sign of relation.

Ex. 77.8 : 52 *Application of photography to astronomy.*

B. The different subdivisions of 77 can be combined by employing the hyphen.

Ex. 77.1312 *Portable stand cameras.*
 77.842 *Stereoscopic photographic apparatus.*
 77.1312-842 *Portable stereoscopic stand cameras.*

In these combinations, works are classed by the classifying number which is first presented in the tables. Thus in the above example 77.1312-842 and not 77.842-1312 should be written.

C. In the divisions of 77.0 are classified works of a general order which concern many photographic processes and are related to the theory and technique as well as to different kinds of photography.

Ex. 77.023.5 *Operations of toning in general.*

But these same divisions also can be employed as analytical subdivisions by combining them with the classifying numbers of the different processes. These subdivisions serve then to specify the point of view from which the subject is treated and to determine its kind and nature.

Thus starting with

77.218 *Photographic processes using salts of mercury,*

the following compound number will be formed

77.218.023.5 *Operations of toning in photographic processes which make use of salts of mercury.*

Many analytical subdivisions can simultaneously

enter into the composition of the same classifying number.

Ex. 77.215.2.012.0234 *Chemical theory—of the development of the latent image—in the gelatino-bromide of silver process.*

As a general rule, only those works which treat of all or many photographic processes will be classed under 77.0, but all works concerned with a special process, no matter from what point of view they may be regarded, will be classed under that process subdivided by the special analytical subdivisions.

77.0

General. Special analytical subdivisions.

- .01 Theory and nature of photographic phenomena.
- .011 Physical effects of light. Photographic optics.
- .012 Chemical effects of light. Photographic chemistry.
(See Optics §35.213.)
- .013 Reactions in the operations.
- .02 General technique of photography. Elementary operations of photographic processes. For the special technique of various processes see these processes in the divisions 77.2 to 77.9.
- .021 Operations preceding the exposure to light for plates, papers, etc.
 - .021.1 Preliminary operations bearing upon plates and sensitive preparations (preparation, preservation, manipulations).
 - .021.2 Preliminary operations on sensitive papers (preparation, cutting, etc.).
 - .021.3 Preparations concerning the dark room.
 - .021.4 Preparations concerning apparatus and utensils.
 - .021.5 Opening of boxes and packets.
 - .021.6 Loading slides.
 - .021.9 Other operations.
- .022 Operations relative to the exposure of light.
 - .022.1 Choice and arrangement of the model and subject.
 - .022.2 Installation of accessories for exposure.
 - .022.3 Preparation and installation of apparatus. Cameras, slides.

- 77.022.4 Choice and preparation of lighting, lamps, screens, etc.
- .022.5 Appreciation of the lighting.
- .022.6 Adjustment of exposure apparatus, shutters, etc.
- .022.7 Adjustment of diaphragms.
- .022.8 Operation of exposure. Focussing.
- .023 Operations directly following the exposure to light.
- .023.1 Preparation of the dark room.
- .023.2 Preparation of developing baths and utensils.
- .023.3 Extraction from the dark slide.
- .023.4 Treatment of the latent image in order to reveal or develop it.
- .023.5 Toning or the complement of the development of the image.
- .023.6 Intensification or reduction.
- .023.7 Fixing and hardening.
- .023.8 Washing and drying.
- .024 Operations concerning the preparation of proofs, prints.
- .024.1 Retouching.
- .024.2 Tinting.
- .024.3 Varnishing.
- .024.4 Pasting.
- .024.5 Cutting.
- .024.6 Glazing, pressing.
- .024.7 Enamelling.
- .025 Preservation and use of negatives. Phototypes positive or negative.
- .025.1 Negative troubles.
- .025.11 Causes.
- .025.12 Remedies.
- .025.3 Preservation of negatives. Boxes.
- .025.4 Classification of negatives. Repertories.
- .026 Preservation and use of prints. Photocopies.
(See 77.146 apparatus for the preservation of prints.)
- .026.1 Print troubles.
- .026.11 Causes.
- .026.12 Remedies.

- 77.026.3 Preservation of prints. Envelopes. Albums.
- .026.4 Classification. Repertories.
- .026.5 Exhibition of prints. Arrangement.
(See 77.146.6 Exhibition furniture.)
- .027 Treatment and utilisation of residues.
- .03 to .07 Different kinds of photographs or prints.
The analytical divisions which follow are only intended to specialise documents according to the kind of photographs of which they treat. The photographic impressions themselves are classed under 77.9 and can be specialised by means of the classification numbers corresponding to the objects which the photographs represent.
- .03 Photographs of a documentary or scientific character.
- .031 Direct photographs of natural objects (created by Nature) visible and in repose.
- .032 Photographs of the reproduction of natural objects.
- .033 Photographs of artificial objects (created by man).
- .033.1 Monuments.
- .033.2 Works of art.
- .033.3 Machines.
- .033.4 Models.
- .034 Photographs of objects in movement.
- .035 Photographs of microscopical objects.
- .036 Medical photographs.
- .037 Photographs of objects invisible to the eye.
- .04 Photographs of an artistic character.
- .05 Photographs considered according to the conditions of obtaining them. (Nature of the lighting, duration of the exposure, etc.)
- .06 Photographs considered according to the nature and appearance of the impressions.
- .07 Photographs considered according to the nature of their supports.
- .1 **Photographic material. Premises, apparatus, utensils and products.**
- .11 Buildings and premises devoted to photographic applications.
- .12 Furniture and heavy plant of workshops.
- .13 Special apparatus for obtaining direct photographic impressions.
(See 681.4 Manufacture of optical instruments.)

- 77.131 Cameras and their accessories.
- .132 Dark slides of cameras for plates and papers.
- .133 Magazine slides.
- .134 Stands and tripods for cameras. Special screws and threads.
- .135 Optical parts of cameras. Objectives and their mountings. Diaphragms.
- .135.1 Lenses, objectives and cases.
(See Optics 535.85 Photographic lenses.)
- .135.2 Objective mountings and fronts.
- .135.3 Screw threads.
- .135.4 Diaphragms and their mountings.
- .135.5 Compensating glasses.
- .135.6 Orthochromatic screens. Coloured glasses and colour cells. Light filters.
(See Optics 535.34 Absorption.
535.736 Protective filters.)
- .136 Photographic shutters.
- .137 Various accessories of cameras.
- .137.1 View finders.
- .138 Apparatus attachable to cameras.
- .139 Other apparatus concerned with cameras.
- .14 Apparatus and utensils common to phototypes and photocopies and special apparatus for obtaining photocopies.
- .141 Apparatus for cutting glass and papers and accessory apparatus for printing of photocopies.
- .142 Different models of special slides. Frames for the printing of photocopies.
- .143 Manipulation apparatus for the operations of developing, fixing and washing.
- .144 Sources of light for photographic operations.
(See Optics 535.89 Lamps.)
- .145 Apparatus for completing impressions, prints.
- .146 Apparatus for the preservation, examination and transport of impressions.
(See 77.026 Preservation and use of prints.)
- .147 Laboratory utensils and other apparatus of photographic manipulation.
- .15 Various products employed in photography and sensitive preparations.

- 77.16 Elementary reactions of inorganic origin entering into the composition of baths for development, fixing, toning, etc.
- .17 Elementary reactions of organic origin entering into the composition of photographic baths.
- .18 Apparatus for the printing of images by mechanical impression.
- .2 **Photographic processes. Photographs with silver and other metal bases.**
- .21 The silver group.
- .22 The iron group.
- .23 The platinum group.
- .24 The chromium group. Uranium. Tungsten. Molybdenum.
- .25 The lead group.
- .26 The tin group.
- .27 The vanadium group.
- .28 The magnesium group.
- .29 Other metals.
- .3 **Powder and "Carbon" Processes. Staining and drying processes.**
- .4 **Photo mechanical impressions. Photocollo-graphy.**
(Processes of photographic impression by greasy inks on a layer of colloidal substances.)
- .5 **Photolithography.**
(Processes of direct photographic impression on stone or analogous substances.)
- .6 **Photozincography.**
(Processes of photographic impression on metallic surfaces without relief.)
- .7 **Phototypography. Photogravure.**
- .8 **Proper or special applications of photography. Applications in which photography plays the most important rôle such as: Enlargements and reductions. Photomicrography, Photography of the invisible. Projections. Reproduction of reliefs and colours. Study and reproduction of movement.**
For the applications of photography to the various sciences, the classification numbers of these sciences will be attached to 77.8 to form a compound number by means of the sign of relation.
Ex. 77.8 : 52 *Application of photography to Astronomy.*
- .81 **Industrial reproductions. Enlargements and reductions by photography.**

- 77.811 Processes of industrial reproduction on the same scale by direct printing.
- .812 Reproduction processes by means of the camera.
- .813 Enlargements.
- .814 Reductions.
- .82 Photographic projection.
(See Optics 535.88 Projectors.)
- .821 Projection apparatus. Lanterns.
- .822 Optical parts. Lenses, condensers, etc.
- .823 Special sources of light for projection apparatus.
(See Optics 535.89 Lighting apparatus.)
- .824 Screens for projections.
- .825 Slides for projection. Lantern slides.
- .826 Various accessories for projections.
- .827 Different kinds of projection and operating details.
- .828 Catalogues. Texts to accompany projections.
- .829 Other details.
- .83 Scientific Photography.
Photomicrography and radiography. Photographic study of the infinitely small and of invisible objects.
- .831 Photomicrography. Apparatus and processes.
(See 578 Microscopy.)
- .832 Telephotography.
- .833 Radiography.
Photography of opaque bodies by means of X or Röntgen rays.
- .833.2 Apparatus for obtaining radiographs.
- .834 Photography by means of fluorescent screens.
- .84 Stereoscopic Photography. Reproduction of relief.
(See Optics 535.767 Stereoscopes.
Physiology 612.846.7 Stereoscopes.)
- .841 Stereoscopic photography.
- .842 Apparatus for stereoscopic photography. Special cameras.
- .843 Practical work. Stereoscopic negatives.
- .844 Stereoscopic apparatus for viewing the pictures.
- .845 Stereoscopic projection. Special apparatus.
- .846 Applications of stereoscopic photography.
- .85 The study and apparent reproduction of movement by photography. Kinematography.

- 77.851 Successive photographs of objects in movement. Working processes. Special apparatus.
- .852 Photographs obtained at known intervals or chronophotography.
- .853 Apparent reproduction of movement by means of photography or cinematography. Working processes.
- .854 Direct vision apparatus. Edison's kinetoscope.
- .855 Apparatus for special projections. Cinematographs and analogous apparatus.
- .856 The practical procedure in cinematographic projection.
- .86 The photography of colour and coloured photographs. Orthochromatism. Chromophotography.
(For photographic impressions in colour or photochromography see 77.48, 77.58, 77.718, 77.728, also Optics 535.416 Photography of colour. Optics 535.65 Colour photography.)
- .861 Photographic reproduction of coloured objects by tints. Orthochromatism.
- .862 Direct reproduction of colours by photography. Processes of Becquerel, Poitevin.
- .863 Reproduction of colours by interference. Lippmann process.
- .864 Reproduction of colours by the superposition of elementary monochromatic impressions. Ducos du Hauron process, etc.
- .865 Photographic projection in colour.
- .88 Photographic recreations and illusions.
- .881 Deformed photographs of objects.
- .882 Multiple photographs of the same object.
- .883 Spectral or illusionary photographs.
- .884 Photographs of exhalations or unexplained effects.

.9 Photographic documents. Collections of photographs.

Photographs themselves are classified here and not in the preceding divisions where the works relative to photography are classed. As a general rule photographs will be considered as documents illustrating a subject (documentary photographs) and the collections will be classified under the numbers of the decimal classification preceded by the sign of relation, without regard to the process employed.

Ex. 77.9 : 629.135.22 *Photographs of biplanes.*

77.9 : 629.135.22 (44) *Photographs of French biplanes.*

Collections of photographs can also be classified optionally and by duplicate, according to the kind and the analytical subdivisions .03 to .07 used. This classification is used when it is specially desired

to illustrate by specimens photographic technique and its various processes.

Ex. 77.9.077 *Photographs on Silk.*

By using the hyphen photographic documents can also be classified according to the various processes.

Ex. 77.9-855 *Collection of cinematographic photographs.*

A subdivision by subjects can even be made after having divided by processes.

Ex. 77.9-855 : 629.135.2 *Collection of cinematographic photographs of aeroplanes.*

78 MUSIC.

79 GAMES. AMUSEMENTS. SPORT.

8 LITERATURE.

9 HISTORY AND GEOGRAPHY.

General history and generalities of History are classed under the division 9. The history of various countries in particular is classed under the divisions 93 to 99, which are not included in the present work.

901 The philosophy of history. History of civilisation.

902 The sciences auxiliary to history. Chronology. Keeping of records. Archaeology. Antiquities.

91 GEOGRAPHY.

91 (...) Geography of various countries in particular.

The subdivisions of place (Table II of the common subdivisions) are applicable here.

Ex. (44) *France.* (73) *United States.*

91 (44) *Geography of France.*

91 (73) *Geography of the United States.*

912 Maps. Atlas. Plans.

Subdivided by country.

92 BIOGRAPHY.

This division comprises autobiographies, memoirs, obituary notices, etc.

Individual biographies are classed alphabetically according to the names of the individuals of which they are the subject.

Ex. 92 (Bacon) *Biography of Bacon.*

Collective biographies comprising the lives of persons of a determined country are subdivided by country.

Ex. 92 (44) *French biography.*

Special collective biographies, comprising the lives of persons who are concerned with the same science, have been occupied with similar work, or have applied themselves to identical works, are subdivided according to subject.

Ex. 92 : 52 *Collective biography of astronomers.*

929 Genealogy. Heraldry.

AUXILIARY TABLES OF THE COMMON SUBDIVISIONS

I. SUBDIVISIONS OF FORM AND GENERALITIES	...	...	...	...	...	...	(0)
II. SUBDIVISIONS OF PLACE	...	...	...	...	...	...	(2 to 9)
III. SUBDIVISIONS OF LANGUAGE	...	...	...	...	...	...	= 2 to 9
IV. SUBDIVISIONS OF TIME	...	...	...	...	...	...	"..."
V. COMMON ANALYTIC SUBDIVISIONS	...	...	...	...	...	...	00

GENERAL OBSERVATIONS

I. In the following pages tables of diverse categories of subdivisions will be found which can be applied to most of the divisions of the bibliographical classification, and in consequence these have been called common subdivisions. The instructions necessary for the employment of these subdivisions and for their combination with one another and with the principal divisions have been given in the Rules of the Decimal Classification, Part I.

II. The common subdivisions can be combined group by group with the principal divisions. Examples :

In the tables will be found	(05)	Reviews of ...
"	"	" (44) France.
"	"	" = 2 English language.
"	"	" "17" eighteenth century.

By combination with the divisions of the principal tables there will result:

53 (05) Reviews of physics.
 614 (44) Public hygiene in France.
 2205 = 2 Version of the Bible in English.
 338.8 "17" Trusts in the eighteenth century.

Several subdivisions can also be combined together. Examples :

53 (05) (44) Physical Reviews published in France.
 338.8 (44) "17" French trusts in the eighteenth century.

III. Some of the subdivisions are sometimes expressed, in certain sciences, by the principal classification numbers and in this case the common subdivisions will not be used. Thus, in Astronomy, instruments are classed under the principal divisions 52.2 *Practical Astronomy, Instruments*, and not by the common subdivision (078) *Instruments of ...*. The following tables should be regarded as a reserve from which subdivisions can be drawn, in order to form a more detailed classification of the subject.

IV. Many of the titles of the tables of the common subdivisions figure in the Alphabetical Index.

AUXILIARY TABLE I

SUBDIVISIONS OF FORM AND GENERALITIES

Principal Divisions.

- (0:)₁ Documentary Index.
- (00) Subdivisions of form common to specified groups.
- (01) General theory of ...
- (02) Treatises of ...
- (03) Encyclopaedias of ...
- (04) Essays on ...
- (05) Periodical publications of ...
- (06) Societies, Institutions, diverse collections of ...
- (07) Teaching and study of ...
- (08) Polygraphs, works in collections, miscellanies of ...
- (09) General history of ...

(0:...) Documentary Index.

All the divisions of the principal classification which concern documents, books or forms of writings can be employed as common subdivisions of form by writing their classification number combined with zero by the colon in parenthesis, as (0:...).

Ex. 82-3 *Fiction written in English.*
 ... (0:82-3) *The subject, treated as English fiction.*
 335 (0:82-3) *English fiction—dealing with socialism.*

The notation (0:...) serves then to transform the principal subdivisions into subdivisions of form. Use is made of these divisions only if the titles that can be expressed in this manner are not already provided for in the existing subdivisions of this table. The most frequent of these divisions are the following:

- (0:091) Manuscripts relative to the subject.
- (0:769) Documents in the form of engravings.
- (0:78) Music relative to ...
- (0:82-1) English poems relative to ...
- (0:82-2) English plays relative to ...
- (0:82-3) English fiction relative to ...
- (00) Subdivisions of form common to specified groups.
 See the particular tables of the classification of each science, notably:
 6(00) Subdivisions of kinds of industrial documents.

(01) General Theory of ...

Subdivision comprising works which treat of the subject in its entirety from the point of view of its principles and its general laws, its philosophy, its scientific methods, its systems and hypotheses, and, in general, of the science of the subject.

- (011) Notion, definition, nature and character, fundamentals, origin and source, limits and extent, object, basis, problem, aim, programme and plan. General conception of the science.
- (012) Classification, divisions of the science and objects studied. Relations between them.
- (013) Value, importance, utility, use, place and rank, defence and eulogy of the science.
- (014) Language, terminology, nomenclature, etymology, synonyms, notations and symbols, abbreviations in use in the science.
Vocabularies and glossaries of technical terms are classed under (038).
- (015) Various scientific theories on the subject. Divided in the same way as the division 5 Pure Science.
Ex. 51 *Mathematics*,
368 (015.1) *Mathematical theories of insurance*.
- (017) Systems of units and measures proper to the subject.
- (018) Scientific and technical methods. Scientific processes.
(See (077) Educational methods and (078) Instruments.)

(02) Treatises of ...

Subdivision comprising works which expose the matter in its entirety in a systematic manner, such as treatises, manuals, systematic accounts, hand guides, aides-mémoire, abridgments, epitomes, vade-mecum, general introduction to the science, principles, précis, compendium, elements, rudiments, syllabus, memento, A.B.C., etc.

- (021) Grand treatises. Scientific and didactic treatises. Subclassed by the common subdivisions of languages.
Ex. 58 (021)=4 *Grand treatise on botany—written in French*.
- (022) Mean treatises or Elements. Subclassed by the common subdivisions of languages.
- (023) Small treatises or rudiments. Manuals for beginners. Popular treatises and tracts intended for propaganda and popularisation. Résumé of common notions. Pocket handbook. Subclassed by the common subdivisions of languages.
(Text-books of the university and elementary books for use in schools are classed under (075).)

- (024) Works of different kinds, destined for special classes of people.

Ex. 59 (024) *Treatises of Zoology for the use of agriculturists.*

This subdivision serves to group works according to their destination.

This title should not be confused with the applications of science, which are classed under the principal number followed by :

Ex. 53:63 *Application of physics to agriculture.*

Works destined for elementary teaching in the schools are classed under (075).

In bibliographical repertories (024) can be optionally subdivided by the principal numbers proper to the matters which concern these persons. Thus the number of agriculture being 63 a more detailed division can be formed, in the example above, as follows:

59 (024:63) *Treatises of Zoology—for the use of agriculturists.*

(03) **Encyclopaedias of ...**

Subdivision comprising general works exposing the matter under an alphabetical form, such as encyclopaedias, dictionaries, lexicons, glossaries, vocabularies of technical terms, etc. Only real encyclopaedias are classed here. The formal encyclopaedia of each science is classed, if there is a place for it, under a special number.

Ex. 340.11 *Formal encyclopaedia of law.*

- (031) Great encyclopaedias, great dictionaries, etc.
Subclassed by the common subdivisions of languages.
- (032) Medium encyclopaedias, medium dictionaries, etc.
Subclassed by the common subdivisions of languages.
- (033) Small encyclopaedias, small dictionaries, etc.
Subclassed by the common subdivisions of languages.
- (038) Dictionaries, lexicons, glossaries, vocabularies of technical terms.
Subclassed by the common subdivisions of languages.

(04) **Essays on ...**

This subdivision contains works which deal with the different points of a matter without exhausting it, such as essays, conferences, discourses, addresses, letters, propositions, dissertations, lessons and courses other than the treatises and text-books, etc. The general sense of this subdivision is determined by opposition to the divisions (02) systematic treatises, (03) alphabetical encyclopaedias and (05) periodical publications.

- (041) **Brochures, pamphlets.**
This division is not employed in bibliography. It is provided for the classification of the books of a library or for catalogues. There, should it so happen, it can be used to indicate that the work has been arranged in the special series of brochures in opposition to books or in opposition to articles or memoirs published in reviews, journals or academic collections which are subclassed under (045).
- (042) Conferences, discourses, addresses, lessons (other than treatises classed under (02) and text-books classed under (075)), and, in general, works destined to be delivered by word of mouth.
- (043) Theses, propositions, dissertations, and, in general, works destined to be discussed orally.
- (044) Letters, correspondence, and, in general, writings addressed to one or many specific persons.
- (045) Articles of periodicals or reviews, memoirs published in the proceedings of a society. This division is not employed in bibliography. It is provided, as (041), for use in libraries. It can be used to indicate that the work is not presented under a separate form, but should be sought for in a collection.
- (046) Articles in the daily papers. This division is not employed in bibliography. It is provided, as (041), for use in libraries. (Daily papers themselves are classed in the principal division 07 Journalism.)
- (047) Small information, current topics, various facts relative to a subject. Writings which give a brief résumé of recent facts concerning the matter, under the title of Weekly Review, Annual Review, will also be classed here. There should be no confusion in this case with (05) Periodical Reviews and (058) Annuals.
- (048) Bibliographic or critical analyses of works relative to the subject. A subdivision comprising the critical analyses, reports, commentaries, studies, literary talks and notices relative to one or many works concerning the subject. (Special bibliographies of the subject are classed under 016: ...)
Ex. 016 : 629.13 *Bibliography of Aircraft.*
- (05) **Periodical publications of ...**
(a) This title comprises the general miscellanies concerning the subject, which appear in a continuous manner, as parts, and at stated intervals, such as scientific, technical and professional reviews, magazines, annals, bulletins and journals devoted to specialities.

(b) There are classed here (i) the publications themselves considered as miscellanies, (ii) all that which concerns these publications, as their tables, history, technical rules, and the critical reports which concern them. But the articles contained in the reviews are classed simply under the special subject concerned.

(c) The periodicals concerning each matter are classified by the country of their origin followed by the title of the publication.

(d) Reviews of a general order, that is to say, those which are not exclusively devoted to a scientific speciality, are classed in the principal division 05. Thus the *Review of Reviews* will be indexed 05 (42).

(e) Journals which treat of various questions, such as daily journals, political journals or gazettes, are classed under the principal division 07 Journalism. Thus the paper *The Times*, published in London, will be indexed 07 (42.1 London). But the special journals dealing with a determined subject are assigned to reviews and classed under each speciality. Thus the *Journal Agricole*, published at Paris, will be indexed 63 (05) (44.36 Paris).

(f) Periodicals published by societies, public institutions, universities and other scientific institutions are classed here under (05) in duplicate though classed principally under the respective divisions of (06) Societies of ... and (07) Scientific establishments of ... in order to collect there all the literature relative to these institutions or emanating from them as an author or editor.

(058) Year books, yearly diaries, note book diaries, books of addresses and directories, special to a science, or to a branch of commerce and industry.
Subdivided as (05) according to place of publication and title.

(059) Almanacs, calendars special to a science or to a branch of commerce and industry.
Subdivided as (05) according to place of publication and title.

(06) Societies, Institutions, diverse collections of ...

(a) This title comprises learned societies, industrial societies, various groupings, associations, organisations and institutions.

(b) The subdivisions of generalities relative to the societies and institutions are subclassed geographically by place, country or town of origin.

(c) Matter relative to these institutions (labours, organisation, history) as well as that which emanates from them as editors (bulletins, annals, memoirs, academic collections, year books, reports, by laws, regulations, minutes of meetings, circulars, etc.) is classed here.

(d) Publications emanating from the institutions and establishments specified hereafter and edited by them are classed not only with each society considered as the author or editor, but also with the special subject of which they treat. Their polygraphic and periodical publications are classed here, but their periodicals are also classed in duplicate under (05) Reviews of ...

(e) If there is an abundance of documents, the subdivisions of each country can be extended so as to group together all that which concerns an institution, and even documents of a similar nature emanating from or relative to this institution can be collected into a subgroup.

To this effect each country and province will be subclassed by town placed in alphabetical order, each town by name of institution, and each institution in accordance with the following divisions written after the parenthesis at the end of the name of the institution. For example, lists of members of the *Société Botanique* of Paris and of the *Société Linnéenne* of Brussels will be classed under the following index numbers:

58 (062) (44.36) (Paris—*Société Botanique*) 4.

58 (062) (493.2) (Brussels—*Société Linnéenne*) 4.

1. Regular publications of the institution concerning its meetings and labours: Bulletins, annals, memoirs, collections, periodical miscellanies and printed works.

2. Contingent publications concerning the proceedings, operations, labours and running of the institution: Minutes and reports of deliberations, communications, diaries, periodical reports, notices, catalogues, prospectuses, circulars, etc.

3. Documents specially concerning the organisation of the institution: Statutes, rules, constitutive charter, etc.

4. Documents specially concerning the personnel of the institution: List of members, list of persons attached to the institution and performing various duties, etc.

5. Documents concerning exceptional meetings. (Convocations other than general assemblies of societies are classed under (063) Convocations.)

6. Documents concerning exhibitions, competitions, distribution of prizes organised by the institution: List of school prize winners.

7. Documents concerning fêtes, ceremonies, excursions, banquets, concerts, representations, receptions, etc.

8. Documents concerning institutions patronised or services organised by the institution, sections, or parts of the institution.

9. Documents concerning matters having an historical character: Anniversaries, jubilees, honours rendered, etc. Writings of circumstances, souvenirs, portraits.

(061) Official Institutions.

Institutions relative to the matter which, under various names, are founded, directed or administered by public bodies are classed here. (Commissions, committees, councils, administrative and elective bodies.)

(062) Non-official Institutions.

Institutions of learning, of professional interest or clubs, which, under various names, are created and administered without the intervention of public bodies and are relative to the matter are classed here. (Scientific societies, professional syndicates, corporations, commissions, committees, circles, clubs, associations, unions, leagues, groups, federations, etc.) (Commercial, industrial or financial institutions are classed under (065).)

(063) Convocations, conferences, reunions, assemblies, etc.
All temporary assemblies of persons which, under various names, meet to determine and discuss questions concerning the matter are classed here.

(064) Temporary exhibitions, Salons.
Temporary collections of objects relative to the matter and organised in view of public exhibition are classed here in a general manner.

(Permanent exhibitions are assigned to museums and classed under (074).

Public competitions and trials are classed under (079.1).

Universal exhibitions and exhibitions of objects concerning many matters are classed under the principal division 606.4.)

- (064.5) Representations, performances, hearings, public demonstrations and experiences, ceremonies, festivities. Writings which concern the meetings of persons assembled with the object of assisting or putting into motion or working the object are classed here in a general manner.
- (065) Commercial establishments.
Institutions and establishments which, under various names and legal forms, have an economic, commercial, industrial or financial object are classed here.
(Houses, firms and societies, companies, exploitations, commercial establishments, private administrations, etc.)
These institutions are classed by country and town of their origin, their legal premises or their principal establishment, see (085) Commercial publications relative to the subject.
- (069) Persons connected with the subject.
Writings relative to people who interest themselves in the subject, study it, occupy themselves with it, exercise a profession or a duty connected with it are classed here; their character, their state, their works, their activity and their own doings, the description of the kind of life they lead and all that which concerns them. Only those works which deal with questions from the general and theoretical point of view are classed here.
Individual biographies of persons designated by name are classed under 92 (A—Z).
Collective biographies under 92: followed by the classifying number of the matter with which the biographies are concerned.
The common subdivision (069) is not made use of when a principal number for classifying the same title exists under the special matter.
- (07) Teaching, study, scientific establishments of ...

- (071) Teaching, study, teaching establishments, programmes and subjects taught in the various grades. Pedagogy of the subject.
 Subdivision comprising the general organisation, the programmes, the personnel, courses, examinations, competitions, degrees, diplomas, certificates, scholarships, the conditions of admission to the schools and all that which is relative to schools of special subjects, the professional schools practical or technical, faculties, chairs, etc.
 (General questions on teaching, notably with reference to the higher and university teaching, are classed under teaching in general, in the principal division 37 and its subdivisions.)
 The grades dealt with in the following subdivisions are those concerned with the teaching of the matter itself, and not the position held by these matters in general teaching. Subclassed geographically followed by the names of the establishments in the same manner as described under (06) Societies of ...
- (071.1) Teaching and study in the higher grade.
- (071.2) Teaching and study in the mean grade.
 Industrial teaching.
- (071.3) Teaching and study in the lower grade.
- (072) Establishments for research, experiment, analysis, or testing, laboratories, stations, institutions, practical courses; their description and organisation, their technique, their reports, notes and various publications, their works.
- (074) Museums and collections of objects with reference to a science or an art. General technical and specified institutions, their description, their reports, catalogues, publications, etc.
 (Permanent exhibitions are classed under museums. Temporary exhibitions are classed under (064).)
- (075) School manuals. Teaching books.
- (076) Problems and questions, their solutions and answers.
 Practical exercises on the subject.
- (077) Methods of teaching proper to a science.
 (For pedagogic methods in general, see 371.
 For scientific and technical methods, see (018).)

(078) Instruments.

(a) This title comprehends apparatus and accessories, tools, equipment, models, objects and material means for research, observation, teaching, demonstration and testing relative to the subjects.

(b) This division is not made use of, if by reason of their importance, principal classification numbers have already been assigned to the different instruments and materials of a science.

Ex. 522 *Astronomical Instruments.*

(08) Polygraphs, collective works, miscellanies, of ...

Polygraphs are understood here to mean works formed by the assembly of many distinct writings and which are neither assimilable to periodicals classed under (05), nor to the collections of societies classed under (06).

(081) Individual polygraphs.

(a) Collections of the various writings of the same author, relative to the subject, such as miscellanies, extracts, quotations, maxims, etc. This subdivision only concerns polygraphic works considered as such and in mass; each of the works or memoirs thus collected is classed also under the subject which it especially concerns.

This remark applies also to the subdivisions (082), (082.1), (082.2).

(b) The editions of the complete works of an author are classed under that matter with which the writings principally deal. ^{1610s}

If the author is concerned with diverse questions, his works are classed under the division 081 of the general tables.

(082) Collected polygraphs. Collections.

Distinct writings, relative to the subject, emanating from many authors and published as a collection.

This division is concerned neither with works published in simple collaboration, which are treated as works of individual authors by placing a duplicate under the name of each collaborator in the repertory of authors—nor with publications of which the editor is in reality an administrative body, a society or any institution and which are classed under the corresponding divisions (06) and (07)—nor, finally, with collected periodical polygraphs which are classed under (05) Periodical publications.

- (083) Formularies, recipes, tables: numerical tables, tables of results. Lists.
(See (084) *Synoptic tables*.)
- (083.1) Recipes.
- (083.2) Formularies.
- (083.3) Abridged prescriptions. Mathematical formulas. Measures, calculations, units.
- (083.4) Tables.
- (083.5) Numerical tables.
- (083.6) Tables of results.
- (083.8) Lists, inventories, returns, catalogues of objects. The catalogues and inventories of books are classed under 01 Bibliography. The catalogues of museums under 708.08 Catalogues of museums. Commercial catalogues are classed under (085).
- (084) Iconography and Cartography.
Charts, plates of models and examples, albums, figures, synoptic and other tables, diagrams concerning a special subject and published without text, with an accessory text, or separately from the text which they illustrate. Atlases, miscellanies, portfolios, albums and diverse plates. Drawings, views, sketches, engravings, photographs, facsimiles of all kinds reproducing or illustrating objects.
(Geographical maps are classed under the principal number 912.)
- (085) Commercial publications relative to the subject. Prospectuses, circulars, advertisements, price lists, commercial catalogues, albums of commercial information on special objects. Publications of industrial establishments and commercial houses. To be divided by country and each country by town, followed by the names of establishments in alphabetical order. Only catalogues special to a determined object are classed here. General catalogues are classed under the matter with which they chiefly deal. Catalogues can also be classified with houses or establishments from which they emanate under the division (065).
(Booksellers' catalogues and those relative to the commerce of books are classed under the principal division 017 Catalogues of books.)
- (088) Various.
- (088.3) Curiosities, varieties, anecdotes, miscellanies of uncertain origin.

(09)

History of ...

This division includes exclusively works which treat of the matter considered in its genesis, its evolution, its development, its movement, its history, its transformation, in general, that is to say, without distinction as to country or epoch.

Ex. 53 (09) *History—of physics.*

Matter considered from the point of view of a determined epoch is classed under the classification number of the matter, followed by the corresponding chronological subdivision. (See Auxiliary Table IV, Subdivisions of Time.)

Ex. 53 "17" *Physics—in the eighteenth century.*

Matter considered from the point of view of a determined country (state, situation, etc.) is classed under the classification number of the matter, followed by the corresponding geographical subdivision. (See Auxiliary Table II, Subdivisions of Place.)

Ex. 53 (42) *Physics—in England.*

Matter considered from the point of view of a determined country and a determined epoch is classed under the classification number of the matter, followed firstly by the geographical subdivision, and then by the chronological subdivision.

Ex. 53 (42) "17" *Physics—in England—in the eighteenth century.*

The subdivisions of time and place here considered concern the "matter or question treated" and are not the date or place of publication of the works. In consequence, so-called ancient works are not classed under this division, but are joined up with modern works. In bibliographical collections and card indexes, bibliographical notices can be arranged, under each classification number, in the successive order of the dates of publication, commencing with dates most removed from the present moment. In this way early works will be found first, followed by more recent ones. The classification order will thus blend with that of the development of the literature of each subject.

AUXILIARY TABLE II

SUBDIVISIONS ACCORDING TO PLACE

Principal Divisions.

- (3) Parts of the ancient world.
- Parts of the modern world.
- (4) Europe.
- (5) Asia.
- (6) Africa.
- (7) North America.
- (8) South America.
- (9) Oceanica.

General Observations.

A. The notion of the common subdivisions of place and their employment.

The common subdivisions of place are established by means of a table of decimal classification numbers inscribed between round brackets. When a work is considered from the point of view of country or of any place whatever, the corresponding geographical subdivision is placed after the index number of the matter dealt with.

- Ex. 91 (44) *The general geography—of France.*
 331.2 (42) *Salaries—in England.*
 385 (44) *Railways—in France.*

As a general rule, the geographical subdivisions are subordinate to the subject-matter divisions, but they precede the subdivisions of time and language.

B. Repertories on a geographical basis.

By duplicating those bibliographical cards which bear geographical subdivisions, it is a simple matter to form duplicate repertories on a geographical basis, in which the notices are arranged at first according to the place with which they are concerned and then according to subject. Thus

(42) 331.2 *England—salaries,*
 may be written instead of

331.2 (42) *Salaries—in England.*

Such repertories, called "Geographical Repertories," render great service to the study of topography or geography, understood in a broad sense.

- Ex. (42) 07 *The journals of England.*
 (42) 19 *English philosophers.*
 (42) 26 *The English Church.*
 (42) 331.89 *Strikes in England.*
 (42) 37 *Teaching in England.*
 (42) 55 *The geology of England.*
 (42) 75 *Painting in England,*
 etc., etc.

C. International and Universal point of view.

The sign (∞) is used to indicate an international or universal point of view.

(3) Geography of the ancient world.

- (31) Ancient China.
- (32) Ancient Egypt.
- (33) Ancient Judea.
- (34) Ancient India.
- (35) Medes and Persians. Chaldea, Assyria, Babylon, Mesopotamia.
- (36) Celts. Ancient Gaul.
- (37) Rome. Ancient Italy.
- (38) Ancient Greece.
- (391) Ancient islands of the Greek Archipelago. Samos, Rhodes, etc.
- (392) Western Asia Minor. The Troad. Ionia, etc.
- (393) Eastern Asia Minor. Cyprus. Cappadocia, etc.
- (394) Syria and Arabia.
- (395) North-west Asia. Colchis.
- (396) Central Asia. Bactria. Hyrcania.
- (397) Africa. Numidia. Carthage, etc.
- (398) South-east Europe. Dacia. Illyria.

(4) Europe.

- (41) Scotland.
- (415) Ireland.
- (42) England. Wales.
- (43) Germany.
- (431) Prussia.
- (432.1) Saxony.
- (433) Bavaria.
- (434.6) Baden.
- (434.7) Württemberg.
- (435.1) Hamburg.
- (435.2) Bremen.
- (435.4) Brunswick.
- (435.6) Westphalia.
- (436) Austria.
- (437) Bohemia.
- (438) Poland.

- (439) Hungary.
- (439.5) Bosnia.
- (439.6) Herzegovina.
- (44) France.**
- (45) Italy.**
 - (456) The Marches. Umbria. Latium. Papal States.
 - (458) Sicily** and the neighbouring islands.
 - (459) Sardinia.
- (46) Spain.**
 - (469) Portugal.
- (47) Russia.**
 - (471) Finland.
 - (479) The Caucasus.
- (48) Scandinavia.**
 - (481) Norway.
 - (485) Sweden.
 - (489) Denmark.
- (491) Iceland.** The Faroe Islands.
- (492) Holland.**
- (493) Belgium.**
- (494) Switzerland.**
- (495) Greece.**
- (496) Turkey.**
- (497) The Balkan principalities.**
 - (497.1) Serbia.
 - (497.2) Bulgaria.
 - (497.3) Montenegro.
- (498) Roumania.**
- (499) Other European States.** Islands of the Greek Archipelago.
- (5) Asia.**
 - (51) China.**
 - (52) Japan.**
 - (53) Arabia.**
 - (54) India.**
 - (55) Persia.**
 - (56) Asiatic Turkey.**
 - (564) Cyprus.
 - (569) Palestine.

- (57) **Siberia.**
- (58) **Central Asia.**
 - (581) Afghanistan.
 - (584) Turkestan.
 - (588) Beloochistan.
- (59) **Indo-China.**
 - (591) Burmah.
 - (593) Siam.
 - (596) Cambodia.
 - (597) French Cochinchina.
 - (598) Annam.
 - (599) Tonquin.
- (6) **Africa.**
 - (611) Tunis.
 - (612) Tripoli.
 - (62) **Egypt.**
 - (63) **Abyssinia.**
 - (64) **Morocco.**
 - (65) **Algeria.**
 - (66) **Central North Africa.**
 - (661) Sahara.
 - (662) Soudan.
 - (663) Senegambia.
 - (664) Sierra Leone.
 - (665) Upper Guinea.
 - (666) Liberia.
 - (667) Ashantees (Country of the).
 - (668) Dahomey.
 - (669) The Gold Coast.
 - (67) **Central South Africa.**
 - (671) Lower Guinea.
 - (672) Loango. French Congo.
 - (675) Independent Congo.
 - (678) Zanzibar.
 - (679) Mozambique.
 - (68) **South Africa.**
 - (682) Transvaal.
 - (683) Zululand.
 - (684) Natal.

- (685) Orange Free State.
- (686) Caffraria.
- (687) The Cape.
- (688) West Coast.
- (689) Interior.
- (69) **Madagascar.**
- (698.1) Reunion.
- (698.2) Mauritius.

(7) North America.

- (71) **Canada.**
- (718) Newfoundland.
- (72) **Mexico.**
- (728) **Central America.**
- (728.1) Guatemala.
- (728.3) Honduras.
- (728.4) San-Salvador.
- (728.5) Nicaragua.
- (728.6) Costa-Rica.
- (729) **East Indies.**
- (729.1) Cuba.
- (729.2) Jamaica.
- (729.3) St Domingo.
- (729.4) Hayti.
- (729.5) Porto-Rico.
- (729.8) Barbadoes.
- (729.9) Bermuda.
- (73) **United States.**

(8) South America.

- (81) **Brazil.**
- (82) **Argentine. Patagonia.**
- (83) **Chili.**
- (84) **Bolivia.**
- (85) **Peru.**
- (86) **Columbia.**
- (861) Ecuador.
- (87) **Venezuela.**
- (88) **Guiana.**
- (881) British Guiana.
- (882) French Guiana.
- (883) Dutch Guiana.

(89) **Paraguay.**

(899) **Uruguay.**

(9) Oceanica.

(91) **The Malay Archipelago.**

(911) **Borneo.**

(912) **Celebes.**

(913) **The Moluccas.**

(914) **Philippines.**

(921) **Sumatra.**

(922) **Java.**

(93) **Melanesia.**

(931) **New Zealand.**

(932) **New Caledonia.**

(94) **Australia.**

(946) **Tasmania.**

(95) **New Guinea.**

(96) **Polynesia.**

(969) **The Sandwich Islands.**

(97) **Isolated Islands of the Ocean.**

(98) **Arctic Regions. North Pole.**

(99) **Antarctic Regions. South Pole.**

AUXILIARY TABLE III

SUBDIVISIONS OF LANGUAGES OR DIALECTS

General Observations.

- (a) These divisions are borrowed from the principal tables, division 4 Philology, of which the initial figure 4 has been replaced by the sign of combination = proper to the subdivisions of language.

Ex. $\begin{array}{l} 42 \text{ English Philology.} \\ = 2 \text{ Writings in English.} \\ 48 \text{ Greek Philology.} \\ = 8 \text{ Writings in Greek.} \end{array}$

- (b) The subdivisions of language are subordinate to all the other divisions and notably to the common subdivisions of form.

Ex. 629.135 (021) = 5 *Grand Treatise—on aeroplanes—written in Italian.*

- = 2 **English.**
- = 29 **Anglo-Saxon.**
- = 3 **German.**
- = 39 **Germanic languages other than German.**
- = 39.1 Low German.
- = 39.2 Frisian. Old Saxon.
- = 39.3 Dutch. Flemish.
- = 39.4 Platt Deutsch.
- = 39.5 Scandinavian in general.
- = 39.6 Old Norse. Icelandic.
- = 39.7 Swedish.
- = 39.8 Danish. Norwegian.
- = 39.9 Gothic.
- = 4 **French.**
- = 49 Provençal.
- = 5 **Italian.**
- = 59 Roumanian.
- = 6 **Spanish.**
- = 69 Portuguese.
- = 7 **Latin.**
- = 8 **Ancient Greek.**
- = 89 Modern Greek.
- = 9 **Other languages.**
- = 91 Indo-European, Indo-Germanic or Aryan languages.

- = 91.1 Indian languages.
- = 91.2 Ancient Indian languages. Sanscrit.
- = 91.5 Iranic.
- = 91.6 Celtic languages.
- = 91.7 Russian.
- = 91.8 Slav languages other than Russian.
- = 92 **Semitic tongues: Syrian, Hebrew, Arabic.**
- = 93 **Hamitic languages: Ancient Egyptian, Coptic.**
- = 95 **Asiatic languages: Chinese.**
- = 96 **African tongues.**
- = 97 **Languages of North America.**
- = 98 **Languages of South America.**
- = 99 **Malay Polynesian languages.**

AUXILIARY TABLE IV

SUBDIVISIONS OF TIME

General Observations.

A. The subdivisions of time are formed by simply writing the dates between double inverted commas, according to the usual computation of years. Thus the year 1467 will be written "1467" and thus the events in the history of France during this year will be classed:

9 (44) "1467" *History of France—in 1467.*

B. The years being expressed as decimal numbers to mark the centuries or decades, it is sufficient to use numbers of two or three figures. In this way there will be formed the divisions:

"14" *Fifteenth Century.*

"15" *Sixteenth Century.*

"155" *The decade or period of years between 1550 and 1560.*

C. The division corresponding to an epoch or duration of time is expressed by the initial and final dates of the period, separated by the sign of relation:

"1815 : 1830" *Period from 1815 to 1830.*

D. Divisions corresponding to years anterior to the Christian era are preceded by the negative sign — :

Ex. "— 1227" *The year 1227 B.C.*

E. It is convenient to represent the following great periods of history in an abridged form:

" ." Time in general. General notion of time. Distribution according to time.

" ∞ " All time. That which is universal according to time.

" — " Antiquity before the Christian era.

" + " Christian era. A.D.

" 04 : 15 " Middle Ages.

" 15 : 18 " Modern Times.

" 18 : 19 " Contemporary Epoch.

F. By invariably assigning two figures to the designation of the month and two figures to the designation of the day of the month, decimal divisions are obtained. To this end, the ordinary number

of the first nine months and that of the first nine days of each month are preceded by zero :

Ex. "1918.12.11" *The 11th December, 1918.*

"1799.08.04" *The 4th August, 1799.*

" : " Time in general. Abstract time. Astronomical time.

" : 1" Present. Past. Future.

" : 11" Present.

" : 12" Past.

" : 13" Future.

" : 2" The Seasons.

" : 21" Spring.

" : 22" Summer.

" : 23" Autumn.

" : 24" Winter.

AUXILIARY TABLE V

COMMON ANALYTIC SUBDIVISIONS OR SUBDIVISIONS
OF GENERAL POINTS OF VIEW*Principal Divisions.*

- ...00.1 The speculative point of view.
Conception. Aim. Programme. Research and theoretical or experimental studies relative to the creation of an object.
- ...00.2 The point of view of realisation.
Execution. Construction. Constituent elements. Processes.
- ...00.3 The economic point of view.
Industrial production. Commercial output. Cost and selling price.
- ...00.4 The point of view of service and use.
Working. Management and service.
- ...00.5 The point of view of fittings and apparatus in connection with the use of the object.
- ...00.6 The point of view of premises and establishments.
Details of organisation and service.
- ...00.7 Special personnel in connection with the object.
- ...00.1 The speculative point of view.**
Conception. Aim. Programme. Summarised description. Researches having in view the development, the working, or the perfecting of the object. Theoretical studies and experiments relating to these studies.
- .11 General idea of a project. Plan of the whole. Programme.**
- .12 Study of development. Special conditions to be fulfilled. Theoretical studies of an apparatus or of a component. Calculations in connection therewith.**
- .13 Summarised description and mode of working of the object conceived.**
(For the description of the finished object see below ...00.4.)
- .14 Tests and experiments on working.**
(For tests on materials, raw materials and products see 62.01.)
- .141 At the start.**
- .142 While in use.**
- .143 After modification or reconstruction.**

...00.2 The point of view of realisation.

Execution. Construction. Production. Extraction. Materials. Constitutive elements.

- .21 Putting into execution. Preliminary measures concerning the preparation, the production, the construction or the manufacture of the object or the product. Gathering the materials or means of action.
- .22 Operations of manufacture, construction, production or extraction. Special processes related thereto.
- .23 Elements and materials entering as raw materials in the constitution of the object or of the product.
- .24 Accessory products employed for the production, construction, working or maintenance of the object, combustibles, coatings, paints, lubricants, etc.
- .25 Machines and installations employed for the production, exploitation or service of the object.
- .251 Heavy equipment, fixed machinery and special installations.
- .252 Engines and apparatus for management and direction.
- .253 Machine tools.
(See 621.9 *Machine tools*.)
- .254 Small and movable tools. Implements.
- .26 Results obtained. Products of manufacture. By-products. Wastes. Residues.
(For the utilisation of by-products, residues and wastes see ...0048.)
- .27 Manipulation and accessory operations in the creation of the object.
- .271 Removals. Towing. Transports.
- .272 Operations of erection and assembling.
- .273 Anchorage, foundation, fixing.

...00.3 The economic and utilitarian point of view.

Industrial production. Commercial efficiency. Buying and selling cost.

(For mechanical efficiency and the service of objects see below ...004.)

- .31 Economic conditions of production. Net cost.
- .311 Net cost of raw materials.
- .312 Cost of labour.
- .313 General and accessory expenses.
- .314 Final net cost of the object.
- .35 Economic conditions of sale. Selling price.
- .36 Results of the undertaking. Profits and losses. Profits.

...00.4 The point of view of service and use.

Detailed description. Working of the object. Mechanical efficiency. Care and service.

- .41 Practice and working of the object. Detailed description. Use. Efficiency.
- .411 Detailed description. Aspect.
- .412 Use. Properties.
- .413 Mode of working.
- .414 Utilisation. Application. Efficiency.
- .42 Service and employment. Rules of employment and manipulation. Care and handling of the object. Conditions for proper working. Qualities. Defects. Instructions for use of. Apprenticeship to the mode of working.
- .43 Management of the object. Transport and packing. Precautions to take.
- .44 Means of preservation. Storage. Recipients employed. Means of protection.
- .45 Upkeep. Inspections and visits. Supervision.
- .46 Wear and tear. Alterations to or errors in the object or product. Accidental deterioration. Repairs or restorations.
- .47 Scrapping. Destruction. Demolition.
- .48 Utilisation of wastes, residues and by-products.
(For wastes and residues see ...00.26.)
- .49 Other service operations.

...00.5 The point of view of fittings and apparatus.

Objects of equipment, of furniture in general.

...00.6 The point of view of premises and establishments.

This subdivision will only be used for details of internal organisation and service. For questions of architecture and constructions, the principal division 725.4 Architecture should be used. The following special analytic subdivisions may be applied uniformly, throughout the division ...00.6.

- .01 Sites. Grounds. Situation. Area.
- .02 Landed properties. General dispositions. Allotments.
- .03 Internal installations. Fittings.
- .04 Furniture and material for service.
- .05 Material for exploiting or manufacture.

Ex. 5.0062.03 *Research Laboratory fittings.*

- ...00.61 **Establishments and premises for direction and control.**
Buildings of direction and general administration. Head office. Buildings for housing the directing personnel.
- .62 **Establishments and premises connected with the study of projects and with their conception or with researches on the means of using the object. Bureaus for study and drawing offices.**
Research laboratories. Fields for agricultural or other experiments. Fields for shooting or trial. Fields for runs or tests. Rooms for concourse, etc.
- .63 **Establishments relating to the manufacture or construction of the object.**
Yards, workshops, studios, factories.
- .64 **Establishments and premises relating to industrial or commercial exploitation.**
Commercial houses, buildings for exploiting.
- .65 **Establishments and premises relating to the supply or usage of the object.**
Shops, depots, parks, etc.
- .66 **Establishments and premises relating to protection and supervision.**
Lodges of keepers, caretakers, etc. Police, aid and look-out posts. Barracks. Fortified posts.
- ...00.7 **Point of view of special personnel.**
 - .71 **Personnel of direction and study.**
Scientific and technical staff. Directors, administrators, professors, inventors, advisers, etc.
 - .72 **Personnel of execution.**
Engineers, works managers, foremen, workmen.
 - .73 **Personnel of exploitation.**
Managers, accountants, clerks, etc.
 - .74 **Personnel of service, of guardianship.**
Agents of different orders. Personnel of service, domestics, keepers, supervisors, caretakers.

PART IV

ALPHABETICAL INDEX TO THE TABLES

The Alphabetical Index which follows is not intended to be a complete index to every detail contained in the Tables. As previously indicated, a complete index is neither possible nor necessary, but it is hoped that the twelve hundred and odd subjects indexed are sufficiently comprehensive to direct the searcher to that decimal group which contains the detail required.

After the alphabetical index has served its purpose in this manner, the correct decimal number, or the appropriate cross reference numbers which can be found in the Tables only, may be noted.

On account of space it has been necessary to abbreviate nearly all the main groups which follow the subjects and in some cases even those subjects themselves which have extended phraseology. The abbreviations however are so self-evident that no difficulty is anticipated in comprehending the specific allocation of a subject.

INDEX

Aberration. Microscopy	578.25	Ametropia. Optics	535.75
Aberration. Optics	535.224	Analysis. Chemistry	543/5
Aberration, chrom. Optics	535.317	Analysis, polariscop. Chem.	544.7
Aberration, mirror. Optics	535.313	Analysis, spectro. Chem.	544.6
Aberration, spherical	535.317	Analysis, spectro. Optics	535.84
Abrasives. Mech. Eng.	621.921	Anatomy	611
Absorption, chem. con. Opt.	535.583	Anatomy. Zoology	59.14
Absorption, dyn. theor. Opt.	535.57.01	Aneroid. Physics	533.43
Absorption, general. Optics	535.34	Angle, measurement. Physics	531.74
Absorption, measure. Optics	535.341	Angle, measurement. Topog.	52.693
Absorption, select. Optics	535.572	Anglo-Saxon	= 29
Absorption, spectra. Optics	535.342	Anisometropia. Optics	535.75
Acceleration. Physics	531.76	Annual	058
Accessories, microscope	578.4	Anomalous dispersion. Optics	535.572
Accommodation. Optics	535.76	Antarctic	(99)
Accommodation. Physiol.	612.842.1	Anti-glare. Optics	535.736
Achromatism. Optics	535.317	Aplanatic lens. Optics	535.81
Achromatism, interfer. Opt.	535.413	Apparatus. Physics	53.07
Acoustic phenom. Meteorol.	551.595	Apparatus, optical	535.07
Acoustics. Physics.	534	Apparatus, scientific	5 (078)
Acuity, visual. Optics	535.736	Aqueous humour. Optics	535.71
Acuity, visual. Physiol.	612.843.6	Arabia	(53)
Address. <i>Subdiv. Form</i>	...(042)	Arabic	= 92
Administration	35	Arc lamp. Elec. Eng.	621.325
Administrator. <i>Analy. Subdiv.</i>	...0071	Arctic	(98)
Advertising. Commerce	659.1	Artificial horizon. Astronomy	52.257
Adviser. <i>Analy. Subdiv.</i>	...0071	Artillery	623.4
Aerial photography	77.8 : 629.13	Asia	(5)
Aeronautics. Engineering	629.13	Assembling. <i>Analy. Subdiv.</i>	...00272
Aeronautics. Physics	533.6	Astigmatism. Ophthal.	617.757
Africa	(6)	Astigmatism. Optics	535.753
After-image. Optics	535.735	Astigmatism. Physiology	612.845.3
Agriculture	63	Astigmatism, thick lens	535.317
Air pump. Physics	533.5	Astigmatism, thin lens	535.316
Alloys, aluminium. Metall.	669.715	Astrolabe. Astronomy	52.241
Almanac	059	Astronomy	52
Almanac. <i>Subdiv. Form</i>	...(059)	Astronomy, descriptive	523
Alpenglühn. Meteorology	551.593.5	Astronomy, nautical	527
Altazimuth. Astronomy	522.42	Astronomy, practical	522
Altimeter. Physics	533.331	Astronomy, theoretical	521
Aluminium alloys. Metall.	669.715	Atlas. Geography	912
Amblyopia. Ophthalmology	617.753	Atmosphere. Physics	533.3
America, North	(7)	Atmosphere, stellar. Phys.	533.36

- Atmospheric electricity 537.4
 Atmospheric refraction 535.314
 Audition. Physics 534.7
 Audition, chromatic 612.843.73
 Australia (94)
 Austria 436)
 Autumn. *Subdiv. Time* " : 23"
 Azimuth sight. Geodesy 52.691
- Babinet compensator. Opt. 535.568.1
 Ball-bearing. Mech. Eng. 621.822
 Balmain's Paint. Optics 535.37
 Balsam, Canada. Indust. Chem. 668.466
 Barograph. Physics 533.44
 Barometer. Physics 533.4
 Base measurement. Geodesy 526.2
 Bavaria (433)
 B.C. *Subdiv. Time* " —"
 Beacon. Marine Eng. 627.92
 Belgium (493)
 Bench, optical 535.07
 Biaxial crystal. Optics 535.53
 Bibliography 01
 Bibliography, subject 016
 Binocular. Manufacture 681.412
 Binocular. Optics 535.83
 Binocular vision. Optics 535.762
 Binocular vision. Physiol. 612.846.2
 Biography 92
 Biology 57
 Bitumen. Indust. Chem. 668.471
 Black body. Physics 535.231
 Blindness, colour. Optics 535.733.3
 Blish prism. Astronomy 52.241
 Body, microscope 578.3
 Bohemia (437)
 Book, precious 09
 Botany 58
 Box sextant. Physics 531.742
 Brachymetropia. Optics 535.751
 Brightness. Optics 535.245
 Brightness, surface. Optics 535.36
 Brochure. *Subdiv. Form* ... (041)
 Brocken spectre 551.593.61
 Bubble, spirit. Physics 532.291
 Building trade 69
 Bunsen's photometer. Optics 535.242
- Buoy, luminous. Mar. Eng. 627.928
 By-products. *Analy. Subdiv.* ...0026
- Cabinet, slide. Microscopy 578.4
 Calendar. *Subdiv. Form* ... (059)
 Calorimetry. Physics 536.6
 Camera. Photography 77.131
 Camera lens. Optics 535.85
 Camera lens. Photography 77.135.1
 Camera lucida. Optics 535.86
 Canada (71)
 Canada Balsam. Ind. Chem. 668.466
 Capillary action. Physics 532.6
 Carbon process. Photog. 77.3
 Carborundum. Indust. Chem. 661.751
 Carborundum. Mech. Eng. 621.921
 Cardinal points. Optics 535.317
 Caretaker. *Analy. Subdiv.* ...0074
 Catalogue. *Subdiv. Form* ... (085)
 Catalogue. Library 017.1
 Cataract. Ophthal. 617.741.5
 Cause. Physics 53.03
 Caustic, reflection. Opt. 535.313
 Caustic, refraction. Opt. 535.314
 Cemented doublet. Opt. 535.318
 Central America (728)
 Centring. *Analy. Subdiv.* ...00272
 Chain. Survey 526.91
 Chart, magnetic. Physics 538.79
 Chartography. *Subdiv. Form* ... (084)
 Chemical industry 66
 Chemical luminescence 535.35
 Chemistry 54
 China (51)
 Chinese = 95
 Choroid. Ophthalmology 617.727
 Choroid. Physiology 612.842.5
 Christian era. *Subdiv. Time* " +"
 Chromatic aberration 535.317
 Chromatic audition 612.843.73
 Chromophotography 77.86
 Chromoptometer. Optics 535.733.1
 Chronology 529
 Chronometer. Astronomy 522.51
 Chronophotography 77.852
 Ciliary body. Ophthal. 617.725
 Ciliary body. Physiol. 612.842
 Cinematograph 77.855

- | | | | |
|--|------------|----------------------------------|------------|
| Circle, division. Physics | 531.743 | Convocation. <i>Sub. Form</i> | ...(063) |
| Circular polarisation. Opt. | 535.562 | Coppering glass. Industry | 666.168 |
| Classification. <i>Subdiv. Form</i> | ...(012) | Coptic | = 93 |
| Classification. Bibliog. | 025.4 | Cornea. Ophthalmology | 617.712 |
| Clerk. <i>Analy. Subdiv.</i> | ...0073 | Cornea. Optics | 535.71 |
| Clinometer. Artillery | 623.462.1 | Cornea. Physiology | 612.841 |
| Clock. Industry | 681 | Coronas. Meteorology | 551.593.64 |
| Cloud, luminous | 551.593.66 | Correspondence. <i>Sub. Form</i> | ...(044) |
| Collection. Library | 08 | Cost, net. <i>Analy. Subdiv.</i> | ...0031 |
| Collodion mirror. Optics | 535.87 | Cost price. Industry | 6(002) |
| Colorimeter. Optics | 535.62 | Crookes' tube. Elec. Eng. | 621.327.4 |
| Colour. Optics | 535.6 | Crucible. Glass Industry | 666.13 |
| Colour blindness | 535.733.3 | Crystal. Crystallography | 548.9 |
| Colour, composition. Optics | 535.62 | Crystal. Glass Industry | 666.21 |
| Colour contrast. Optics | 535.733.5 | Crystal, biaxial. Optics | 535.53 |
| Colour contrast. Physiol. | 612.843.35 | Crystal brushes. Optics | 535.547 |
| Colour, crys. plates. Opt. | 535.543 | Crystal constants. Optics | 535.544 |
| Colour, interference. Opt. | 535.63 | Crystal, polarisation. Optics | 535.565 |
| Colour mixture. Physiol. | 612.843.34 | Crystal, rock. Mineralogy | 552.45 |
| Colour, objective. Optics | 535.572 | Crystal, uniaxial. Optics | 535.52 |
| Colour of sky. Optics | 535.431 | Crystalline humour. Optics | 535.74 |
| Colour photography | 77.86 | Crystalline humour. Physiol. | 612.844 |
| Colour photography. Optics | 535.65 | Crystallographic optics | 535.544 |
| Colour, photography of. Optics | 535.416 | Crystallography | 548 |
| Colour, polarisation. Optics | 535.64 | Current, earth. Physics | 538.72 |
| Colour, thin plates. Optics | 535.415 | Curvature, measure. Physics | 531.717 |
| Colour trade | 667.6 | Cut-glass. Glass Industry | 666.21 |
| Colour vision. Optics | 535.733.1 | Cutter, print. Photography | 77.024.5 |
| Colour vision. Physiol. | 612.843.31 | Cutting diamond. Glass Ind. | 666.224 |
| Colouring metals. Ind. Chem. | 667.673 | | |
| Coma. Optics | 535.317 | Daltonism. Ophthalmology | 617.755 |
| Commerce | 38 | Daltonism. Optics | 535.733.3 |
| Commercial establt. <i>Sub. Form</i> | ...(065) | Daltonism. Physiology | 612.843.33 |
| Commercial publn. <i>Sub. Form</i> | ...(085) | Danish | = 39.8 |
| Compass, magnetic. Physics | 538.74 | Dark field. Microscopy | 578.5 |
| Compass, magnetic. Survey | 526.91 | Dark slide. Photography | 77.132 |
| Compensator, Babinet. Opt. | 535.568.1 | Day-blindness. Physiol. | 612.845.6 |
| Compound instrument. Opt. | 535.319 | Definition, instrument. Optics | 535.424 |
| Compression. Elasticity | 539.31 | Denmark | (489) |
| Condenser. Microscopy | 578.5 | Density. Physics | 531.75 |
| Conduction. Heat | 536.2 | Deposit on optical glass | 666.22 |
| Conference. <i>Subdiv. Form</i> | ...(063) | Depot. <i>Analy. Subdiv.</i> | ...0065 |
| Conical refraction. Opt. | 535.532 | Design. <i>Analy. Subdiv.</i> | ...0012 |
| Conjunctiva. Ophthal. | 617.711 | Detail, recognition of. Optics | 535.736 |
| Conjunctiva. Physiol. | 612.841 | Development. Photography | 77.023.4 |
| Construction. <i>Analy. Subdiv.</i> | ...0021 | Dial sight. Artillery | 623.462.2 |
| Contemporary epoch. <i>Sub. Time</i> "18 : 19" | | Diamagnetism. Physics | 538.4 |
| Contract. Industry | 6(003) | Diamond, cutting. Glass Ind. | 666.224 |

Diaphragm. Photography	77.135.4	Elements. <i>Subdiv. Form</i>	...(022)
Dichroism. Optics	535.572	Elliptic polarisation. Optics	535.562
Dictionary. <i>Subdiv. Form</i>	...(038)	Elliptic vibration. Optics	535.541
Diffraction. Optics	535.42	Emery. Mech. Eng.	621.921
Diffraction. Sound	534.2	Emission. Optics	535.35
Diffraction, optical instr.	535.424	Emission spectra. Optics	535.33
Diffraction, particles. Optics	535.43	Emission theory. Optics	535.11
Diffusion. Optics	535.36	Encyclopedia	03
Dilatation. Heat	536.41	Encyclopedia. <i>Subdiv. Form</i>	...(03)
Dioptrics. Optics	535.74	Energy. Physics	531.6
Dioptrics. Physiology	612.844.2	Energy, radiation. Physics	535.23
Dioptriometer. Optics	535.81	Energy, spectrum. Optics	535.232
Diplopia. Physiology	612.846.8	Engineering	62
Director. <i>Analy. Subdiv.</i>	...0071	Engineering, Electrical	621.3
Director. Artillery Instr.	623.462.2	Engineering, Mechanical	621
Directory. <i>Subdiv. Form</i>	...(058)	Engineering, Military	623
Discourse. <i>Subdiv. Form</i>	...(042)	Engineering, Naval	623
Dispersion, anomalous. Opt.	535.572	Engineering, Sanitary	628
Dispersion, chem. constit.	535.583	England	(42)
Dispersion, measure of. Opt.	535.321	English	= 2
Dispersion, optical glass	535.583	Engraving glass. Industry	666.28
Dispersion theory. Optics	535.58	Entoptic phenomena. Optics	535.735
Dissertation. <i>Subdiv. Form</i>	...(043)	Entoptic phenom. Physiol.	612.843.4
Distortion. Geom. Optics	535.317	Epoch, contemp. <i>Sub. Time</i>	"18 : 19"
Dividing engine, circ.	681.2 : 531.74	Equatorial. Astronomy	52.246
Doppler's principle. Optics	535.224	Equipment. <i>Analy. Subdiv.</i>	...005
Double refraction. Optics	535.55	Erection. <i>Analy. Subdiv.</i>	...00272
Doublet, cemented. Optics	535.318	Errors, observation. Maths.	519.6
Drawing. Industry	6 (004)	Esotropia. Ophthalmology	617.761
Dutch	= 39.3	Esotropia. Physiology	612.846.8
Dynamic electricity. Phys.	537.5	Essays. <i>Subdiv. Form</i>	...(04)
Dynamics. Physics	531.3	Essays, collection of	04
		Ethics	17
Ear. Physics	534.7	Europe	(4)
Earth current. Physics	538.72	Evolution. Biology	57
East Indies	(729)	Execution. <i>Analy. Subdiv.</i>	...0021
Education	37	Exhibition. <i>Subdiv. Form</i>	...(064)
Education. <i>Subdiv. Form</i>	...(071)	Exhibition, universal	606.4
Egypt	(62)	Extra-meridian instrument	522.4
Elasticity. Physics	539.3	Eye. Zoology	59.14.84
Electrical Engineering	621.3	Eye, artificial. Prosthesis	617.928.7
Electricity. Meteorology	551.594	Eye, defects. Optics	535.75
Electricity. Physics	537	Eye, human. Optics	535.7
Electricity, atmospheric	537.4	Eyeglass. Optical Trade	681.411
Electricity, dynamic	537.5	Eyelid. Ophthalmology	617.77
Electrokinetics. Physics	537.3	Eye-piece. Artillery	623.425.1
Electromagnetic theory. Opt.	535.13	Eye-piece. Microscopy	578.27
Electromagnetism. Physics	538.3	Eye-piece. Optics	535.318

- | | | | |
|-------------------------------------|-------------------|-------------------------------------|-------------|
| Factory. <i>Analy. Subdiv.</i> | ...0063 | Gilding glass. Industry | 666.167 |
| Factory organisation | 621.7 | Glare. Optics | 535.736 |
| Fatigue, visual. <i>Physiol.</i> | 612.843.1 | Glass. Industry | 666 |
| Field, dark. <i>Microscopy</i> | 578.5 | Glass, abrasion. Industry | 666.224 |
| Field-glass. Industry | 681.412 | Glass, annealing. Industry | 666.222 |
| Field-glass. Optics | 535.83 | Glass, cutting. Industry | 666.224 |
| Film. <i>Photography</i> | 77.15 | Glass, engraving. Industry | 666.28 |
| Film mirror, collodion. <i>Opt.</i> | 535.87 | Glass, grinding. <i>Opt. Ind.</i> | 681.42 |
| Filming of optical glass | 666.22 | Glass, hardened. Industry | 666.18 |
| Filter, light. <i>Photography</i> | 77.135.6 | Glass manufacture | 666.1 |
| Filter, protective. <i>Physics</i> | 535.736 | Glass, moulding optical | 666.223 |
| Filter, tricolour. <i>Photog.</i> | 77.864 | Glass, optical. Industry | 666.22 |
| Firm. <i>Subdiv. Form</i> | ...(065) | Glass, plate. Industry | 666.16 |
| Fittings. <i>Analy. Subdiv.</i> | ...005 | Glass, polishing. <i>Opt. Ind.</i> | 681.42 |
| Fixing. <i>Photography</i> | 77.023.7 | Glass, silvering. Industry | 666.165 |
| Flemish | = 39.3 | Glass, spying. Industry | 686.77 |
| Flexure, instrument. <i>Astron.</i> | 522.38 | Glass, tarnishing. <i>Opt. Ind.</i> | 666.22 |
| Flow, surface. <i>Physics</i> | 539.63 | Glass tube. Industry | 666.173 |
| Fluorescence. <i>Physics</i> | 535.37 | Glass working tools. <i>Ind.</i> | 681.42 |
| Fluorescent screen | 535.371 | Glaucoma. <i>Pathology</i> | 617.749.5 |
| Focometer. Optics | 535.81 | Glazier. Trade | 698 |
| Focus. <i>Photography</i> | 77.022.8 | Glories. <i>Meteorology</i> | 551.593.61 |
| Force. <i>Physics</i> | 531.78 | Glossary. <i>Subdiv. Form</i> | ...(038) |
| Foreman. <i>Analy. Subdiv.</i> | ...0072 | Glue. Industry | 668.4 |
| Foundation. <i>Analy. Subdiv.</i> | ...00273 | Goniometer. Optics | 535.322 |
| France ... | (44) | Goniometer. <i>Physics</i> | 531.741 |
| French | = 4 | Goniometer. <i>Survey</i> | 526.91 |
| Friction. <i>Physics</i> | 531.4 | Government publications | 083 |
| Fringe, interference. Optics | 535.412 | Graticule. <i>Opt. Ind.</i> | 681.41 |
| Fundus, photo. of. <i>Physiol.</i> | 612.843.11 | Grating. Optics | 535.421 |
| Furnace. Glass Industry | 666.13 | Gravity. <i>Physics</i> | 531.5 |
| Furnace. <i>Metallurgy</i> | 669.8 | Greece | (495) |
| Future. <i>Subdiv. Time</i> | " : 13" | Greek | = 8 |
| Gas. <i>Physics</i> | 533 | Grinding glass. <i>Opt. Ind.</i> | 681.42 |
| Gas, refraction. Optics | 535.325 | Grinding materials. <i>Eng.</i> | 621.921 |
| Gas spectra. Optics | 535.336 | Gum. Industry | 668.4 |
| Gauge, opt. proj. of | 621.716.3 : 535.8 | Gun sight. <i>Artillery</i> | 623.425.1 |
| Gem. <i>Econ. Geology</i> | 553.8 | Gun-sighting telescope | 623.462.1 |
| Genealogy | 929 | Haidinger's brushes. <i>Opt.</i> | 535.735 |
| Geodesy | 526 | Haloes. <i>Meteorology</i> | 551.593.63 |
| Geography | 91 | Haloes, theory. Optics | 535.432 |
| Geology | 55 | Hardening. <i>Photography</i> | 77.023.7 |
| Geology, economic | 553 | Head office. <i>Analy. Subdiv.</i> | ...0061 |
| Geology, physical | 551 | Headlight, motor car | 629.113.018 |
| Geometrical Optics | 535.31 | Heat. <i>Physics</i> | 536 |
| German | = 3 | Hebrew | = 92 |
| Germany | (43) | Heliograph. <i>Communication</i> | 654.91 |

Heliometer. Astronomy	522.45	Instrument, optical. Phys.	535.8
Heliostat. Astronomy	522.58	Instrument, optical. Trade	681.4
Heliotropism. Zoology	59.11.856	Instrument, scientific	5 (078)
Hemeralopia. Ophthal.	617.735.8	Instrument, scientific. Ind.	681.2
Hemeralopia. Physiol.	612.845.6	Instrument, surveying	52.691
Heraldry	929	Insurance	36
History	9	Intensification. Photog.	77.023.6
History. <i>Subdiv. Form</i>	...(09)	Interference. Optics	535.41
Holland	(492)	Interference achromatism	535.413
Horizon, artificial. Astron.	52.257	Interference app. Optics	535.411
Humidity. Meteorology	551.57	Interference applications	535.417
Humour, crystalline. Opt.	535.74	Interference, polarised	535.512
Humour, vitreous. Ophthal.	617.747	Interference, scatter	535.433
Hungary	(439)	Interferential refractr.	535.414
Hydraulic machine. Physics	532.8	Interferometer	535.417
Hydraulics. Physics	532.5	Interocular distance. Opt.	535.7.08
Hydrometer. Physics	532.4	Invention. Industry	608
Hydrostatics. Physics	532	Inventory. Industry	6 (002)
Hygrometry. Meteorology	551.57	Ireland	(415)
Hypermetropia. Ophthal.	617.756	Iris. Ophthal.	617.723
Hypermetropia. Optics	535.752	Iris. Optics	535.72
Hypermetropia. Physiol.	612.845.2	Iris. Physiol.	612.842
Iceland	(491)	Iris diaphragm. Photog.	77.135.4
Icelandic	= 39.6	Ironmongery	683
Iconography. <i>Subdiv. Form</i>	...(084)	Irradiation. Optics	535.732
Illuminant. Optics	535.89	Irradiation. Physiol.	612.843.2
Illuminating power. Optics	535.35	Italian	= 5
Illumination. Optics	535.245	Italy	(45)
Illumination, artificial	665	Japan	(52)
Illumination, electric	621.32	Journalism	07
Illusion. Photography	77.88	Keeper. <i>Analy. Subdiv.</i>	...0074
Illusion, visual. Physiol.	612.843.74	Kinematics	531.1
Image. Microscopy	578.62	Kinematograph, projection	77.855
Image, theory. Optics	535.317	Kinematography	77.85
Incandescence. Heat	536.45	Kinetoscope, Edison's	77.854
Incandescent lamp. Elec. Eng.	621.326	Laboratory. <i>Analy. Subdiv.</i>	...0062
India	(54)	Laboratory. <i>Subdiv. Form</i>	...(072)
Indo-China	(59)	Lachrymal app. Physiol.	612.847
Induction. Electricity	538.5	Lachrymal canal. Ophthal.	617.766
Industry	6	Lamp. Microscopy	578.5
Inspection. <i>Analy. Subdiv.</i>	...0045	Lamp. Optics	535.89
Installation. <i>Analy. Subdiv.</i>	...0025	Lamp, arc. Elec. Eng.	621.325
Institution. <i>Subdiv. Form</i>	...(06)	Lamp, dark room. Photog.	77.144
Instrument. Artillery	623.462	Lamp, incandescent. Elec. Eng.	621.326
Instrument. <i>Subdiv. Form</i>	...(078)	Lamp, mercury vapour	621.327.3
Instrument. Physics	53.07		
Instrument, compound. Optics	535.319		

- | | | | |
|----------------------------------|------------|-------------------------------------|-----------|
| Lamp, Nernst | 621.327.2 | Machine. <i>Analy. Subdiv.</i> | ...0025 |
| Lamp, pointolite | 621.325.2 | Machine tool. Mech. Eng. | 621.9 |
| Lamp, signalling | 654.91 | Magic mirror. Optics | 535.313 |
| Lantern, projection. Photog. | 77.821 | Magnalium. Metallurgy | 669.715.8 |
| Lantern slide. Photography | 77.825 | Magnetic chart. Physics | 538.79 |
| Larynx. Physics | 534.7 | Magnetic rot. polarisation | 538.61 |
| Latin | =7 | Magnetic rot. pol. Optics | 535.567 |
| Law | 34 | Magnetism. Physics | 538 |
| Law. Physics | 53.02 | Magnetism, terrestrial. Phys. | 538.7 |
| Length, measurement. Phys. | 531.71 | Magnifying glass. Optics | 535.82 |
| Lens. Manufacture | 681.42 | Manager. <i>Analy. Subdiv.</i> | ...0073 |
| Lens. Ophthalmology | 617.741 | Manual, school. <i>Subdiv. Form</i> | ...(075) |
| Lens. Optics | 535.81 | Manufacture. <i>Analy. Subdiv.</i> | ...0021 |
| Lens, thick. Geom. Optics | 535.317 | Manuscripts | 09 |
| Lens, thin. Geom. Optics | 535.316 | Map. Geography | 912 |
| Letter. <i>Subdiv. Form</i> | ...(044) | Mass. Physics | 531.75 |
| Level. Geodesy | 52.633 | Materials, resist. of. Elas. | 539.4 |
| Level, spirit. Physics | 532.291 | Mathematics | 51 |
| Lexicon. <i>Subdiv. Form</i> | ...(038) | Measure. <i>Subdiv. Form</i> | ...(017) |
| Library economy | 02 | Measurement. Physics | 53.08 |
| Life | 57 | Measures and weights | 389 |
| Light. Geophysics | 525.22 | Measuring machine. Physics | 531.714 |
| Light, action of. Physiol. | 612.014.44 | Mechanical Engineering | 621 |
| Light, port. Mar. Eng. | 627.92 | Mechanical equival. Light | 535.214 |
| Light source. Microscopy | 578.5 | Mechanics. Physics | 531 |
| Light, velocity | 535.22 | Medicine | 61 |
| Lighthouse. Mar. Eng. | 627.92 | Melanesia | (93) |
| Lighthouse. Optics | 535.88 | Meldometer. Physics | 536.522 |
| Lighting apparatus. Optics | 535.89 | Melting. Op. Glass Ind. | 666.221 |
| Lighting, artificial. Ind. | 665 | Mercury telescope. Astro. | 52.221 |
| Lighting, electric. Eng. | 621.32 | Mercury vap. lamp. Elec. Eng. | 621.327.3 |
| Limb. Microscopy | 578.3 | Meridian instrument. Astro. | 522.3 |
| Lipmann process. Photog. | 77.863 | Metal, colouring. Ind. | 667.673 |
| Liquids, refract. index. Optics | 535.323 | Metal reflection. Optics | 535.573 |
| Lissajous figures. Phys. | 531.32.05 | Metal staining. Ind. | 667.673 |
| List. <i>Subdiv. Form</i> | ...(083) | Metalloids, spectra. Optics | 535.332 |
| List, price. <i>Subdiv. Form</i> | ...(085) | Metallurgy | 669 |
| Literature | 8 | Metals, spectra. Optics | 535.331 |
| Lithology | 552 | Metaphysics | 11 |
| Locomotion. Engineering | 629.1 | Meteorology | 551.5 |
| Logic | 16 | Metrology. Commerce | 389 |
| London | (42.1) | Mexico | (72) |
| Loss. <i>Analy. Subdiv.</i> | ...0036 | Micas, the. Mineralogy | 549.634 |
| Luminescence, chemical. Opt. | 535.35 | Micrometer. Astronomy | 52.253 |
| Luminosity. Zoology | 59.11.99 | Micrometer. Physics | 531.714 |
| Luminous buoy. Mar. Eng. | 627.928 | Microscope. Biology | 578 |
| Luminous paint. Optics | 535.37 | Microscope. Manufacture | 681.413 |
| Luminous signs. Elec. Eng. | 621.328.25 | Microscope. Optics | 535.82 |

Microscope, compound	578.13	Nephelometer. Optics	535-43.07
Microscope, measuring	535.82	Nernst lamp. Elec. Eng.	621.327.2
Microscope, mech. system	578.3	Nerve, optic. Optics	535.73
Microscope, objective	578.22	Nerve, optic. Physiology	612.843
Microscope, op. system	578.2	Net cost. <i>Analy. Subdiv.</i>	...0031
Microscope, projection	578.11	New Zealand	(931)
Microscope, reading	535.82	Nodal slide. Optics	535.317
Microscope, simple	578.12	Nomenclature. <i>Subdiv. Form</i>	...(014)
Microscope, various	578.1	North Africa. Central	(66)
Microscopy. Biology	578	North America	(7)
Microscopy. Chemistry	544.8	North Pole	(98)
Microscopy. Petrology	552.8	Norway	(481)
Middle ages. <i>Subdiv. Time</i>	"04 : 15"	Norwegian	= 39.8
Military Engineering	623		
Mineralogy	549	Obituary notice	92
Mirage. Meteorology	551.593.1	Objective. Geom. Optics	535.318
Mirage. Optics	535.314	Objective, microscope	578.22
Mirror. Industry	686.7	Objective, photo. Optics	535.85
Mirror. Optics	535.87	Objective, photo. Photog.	77.135.1
Mirror, collodion. Optics	535.87	Objective, telescope. Astro.	52.224
Mirror, curved. Optics	535.313	Objects. Microscopy	578.6
Mirror, magic. Optics	535.313	Observatory. Astronomy	522.1
Mirror, optical. Industry	681.42	Oceanica	(9)
Mirror, paraboloid. Astro.	52.221	Ocular. Astronomy	522.23
Mirror, plane. Optics	535.312	Ocular. Geom. Optics	535.318
Mirror, spherical. Optics	535.313	Ocular. Microscopy	578.27
Miscellanies. <i>Subdiv. Form</i>	...(08)	Office, head. <i>Analy. Subdiv.</i>	...0061
Modern times. <i>Subdiv. Time</i>	"15 : 18"	Official publication	083
Molecular physics	539	Ophthalmological instrs.	535.75
Molecular rot. polaris. Opt.	535.566	Ophthalmology	617.7
Molecular structure. Phys.	539.1	Ophthalmometer. Physiol.	612.842.61
Motor car headlight	629.113.018	Ophthalmoscope. Physiol.	612.843.12
Moulding optical glass	666.223	Optic nerve. Ophthalmology	617.731
Mount cutter. Photography	77.024.5	Optic nerve. Optics	535.73
Mounting. <i>Analy. Subdiv.</i>	...0027.2	Optic nerve. Physiology	612.843
Mounting objects. Micros.	578.6	Optical bench. Optics	535.07
Mural circle. Astronomy	522.32	Optical firms	681.4(065)
Muscae volitantes. Physiol.	612.843.4	Optical glass. Industry	666.22
Museum. <i>Subdiv. Form</i>	...(074)	Optical glass, dispersion	535.583
Music	78	Optical glass, tarnishing	666.22
Musketry	623.555	Optical instrument. Ind.	681.4
Myopia. Ophthalmology	617.751	Optical instrument. Phys.	535.8
Myopia. Optics	535.751	Optical instr. definition	535.424
Myopia. Physiology	612.845.1	Optical phenomena. Meteorol.	551.593
		Optical prop. crystals	548.9
Naval Engineering	623	Optical resonance. Optics	535.43
Navigation, theory	527	Optical signal. Commun.	654.91
Negative. Photography	77.025	Optical signal. Munitions	623.731

- | | | | |
|----------------------------------|------------|-------------------------------|---------------|
| Optical systems. Geom. Opt. | 535.317 | Photography, aerial | 77.8 : 629.13 |
| Optical telegraphy | 65.491 | Photography, colour | 77.86 |
| Optical trade | 681.4 | Photography, colour. Optics | 535.65 |
| Optics. Physics | 535 | Photography, military | 623.72 |
| Optics. Physiology | 612.84 | Photography of colour. Opt. | 535.416 |
| Orthochromatic screen | 77.135.6 | Photography, retina. Physiol. | 612.843.11 |
| Orthochromatism. Photog. | 77.86 | Photography, technique | 77.02 |
| Osmosis. Physics | 532.7 | Photography, theory | 77.01 |
| | | Photogravure | 77.7 |
| Packing. <i>Analy. Subdiv.</i> | ...0043 | Photolithography | 77.5 |
| Paint, luminous. Optics | 535.37 | Photometer. Manufacture | 681.415 |
| Paint. Manufacture | 667.6 | Photometer. Optics | 535.242 |
| Palaeontology | 56 | Photometric standard | 535.241 |
| Palpebral app. Physiol. | 612.847 | Photometry. Astronomy | 522.62 |
| Pamphlet. <i>Subdiv. Form</i> | ...(041) | Photometry. Optics | 535.24 |
| Paraboloid mirror. Astro. | 52.221 | Photometry. Physiology | 612.843.6 |
| Paraselenæ. Meteorology | 551.593.63 | Photometry, arc lamp | 621.325.5 |
| Parhelia. Meteorology | 551.593.63 | Photometry, incandes. lamp | 621.326.2 |
| Park. <i>Analy. Subdiv.</i> | ...0065 | Photometry, stellar | 535.246 |
| Particles, diffraction. Opt. | 535.43 | Photomicrography | 77.831 |
| Past. <i>Subdiv. Time</i> | " : 12" | Photophone. Optics | 535.35 |
| Patent. Industry | 6(008) | Phototropism. Zoology | 59.11.856 |
| Pedagogy. <i>Subdiv. Form</i> | ...(071) | Phototypography | 77.7 |
| Perception, visual | 612.843.72 | Photozincography | 77.6 |
| Periodicals | 05 | Physics | 53 |
| Periodicals. <i>Subdiv. Form</i> | ...(05) | Physics, molecular | 539 |
| Periscope. Geom. Optics | 535.319 | Physiological optics. Physics | 535.7 |
| Periscope. Optics | 535.86 | Physiology | 612 |
| Persia | (55) | Physiology. Zoology | 59.11 |
| Persistence of vision | 535.735 | Pigment, eye. Physiology | 612.842.5 |
| Petrology | 552 | Pitch. Indust. Chem. | 668.471 |
| Philology | 4 | Plan. Geography | 912 |
| Philosophy | 1 | Plan. Industry | 6(004) |
| Phonetics. Physics | 534.7 | Planimeter. Physics | 531.72 |
| Phosphenes. Physiology | 612.843.4 | Plate. Photography | 77.15 |
| Phosphorescence. Optics | 535.37 | Plate glass. Industry | 666.16 |
| Phosphorescence. Zoology | 59.11.99 | Plates, colour crys. Optics | 535.543 |
| Photochemistry | 535.38 | Plates, colour, thin. Optics | 535.415 |
| Photocollography | 77.4 | Platinising glass. Ind. | 666.166 |
| Photocopy. Photography | 77.026 | Pleochroism. Optics | 535.546 |
| Photograph, artistic | 77.04 | Pneumatics. Physics | 533 |
| Photograph, collection | 77.9 | Pointolite lamp. Elec. Eng. | 621.325.2 |
| Photograph, scientific | 77.03 | Poland | (438) |
| Photographic lens. Optics | 535.85 | Polarimeter. Manufacture | 681.416 |
| Photographic lens. Photog. | 77.135.1 | Polarimeter. Optics | 535.568.2 |
| Photographic methods. Astro. | 52.263 | Polarisation. Astronomy | 522.65 |
| Photographic processes | 77.2 | Polarisation. Crystallog. | 548.92 |
| Photography | 77 | Polarisation. Meteorology | 551.593.7 |

Polarisation. Optics	535.5	Problems. <i>Subdiv. Form</i>	...(076)
Polarisation, circular. Opt.	535.562	Process work. Printing Ind.	655.35
Polarisation, elliptic. Opt.	535.562	Production. <i>Analy. Subdiv.</i>	...0021
Polarisation, mag. rot. Elec.	538.61	Professor. <i>Analy. Subdiv.</i>	...0071
Polarisation, mag. rot. Opt.	535.567	Profit. <i>Analy. Subdiv.</i>	...0036
Polarisation, mol. rot. Opt.	535.566	Programme. <i>Analy. Subdiv.</i>	...0011
Polarisation, rotatory. Opt.	535.56	Projection apparatus. Phot.	77.821
Polarisation, sky. Optics	535.431	Projection screen. Photog.	77.824
Polariscope. Manufacture	681.416	Projection, stereo. Photog.	77.845
Polariscope. Optics	535.511	Projector. Optics	535.88
Polariscope. Rot. pol. Opt.	535.568.1	Projector, opt. Munitions	623.731
Polariscopic analysis. Chem.	544.7	Prosthesis	617.928
Polarised radiation. Opt.	535.514	Protection. <i>Analy. Subdiv.</i>	...0044
Polish. Physics	539.63	Protective filter. Optics	535.736
Polishing. Micro. metall.	669.913.11	Protractor. Physics	531.741
Polishing. Optical Ind.	681.42	Psychology	15
Polishing materials. Eng.	621.921	Publications, government	083
Polishing plate. Glass Ind.	666.163	Publicity. Commerce	65.91
Polishing tool. Opt. Ind.	681.42	Pupil. Ophthalmology	617.724
Polychroism. Crystallog.	548.95	Pupillometer. Physiol.	612.842.11
Polychroism. Optics	535.546	Purple, visual. Optics	535.731
Polygraph. <i>Subdiv. Form</i>	...(08)	Purple, visual. Physiol.	612.843.1
Polynesia	(96)	Pyrheliometer. Meteorol.	551.521.1(078)
Port-light. Marine Eng.	627.92	Pyrometer, optical	536.521
Portugal	(469)		
Portuguese	=69	Quadrant. Astronomy	52.241
Pot. Glass Industry	666.13	Quartz. Optics	535.561
Powder process. Photog.	77.3	Quartz. Tech. Mineralogy	552.45
Precious books	09		
Precious stones. Econ. Geol.	553.8	Radiation. Meteorology	551.521
Presbyopia. Ophthalmology	617.752	Radiation. Optics	535.35
Presbyopia. Optics	535.754	Radiation effects. Optics	535.21
Presbyopia. Physiology	612.845.4	Radiation energy. Optics	535.23
Present. <i>Subdiv. Time</i>	" : 11 "	Radiation, polarised. Optics	535.514
Preservation. <i>Analy. Subdiv.</i>	...0044	Radiation pressure. Optics	535.214
Preservation. Industry	6(006)	Radiography	77.833
Pressure. Physics	531.78	Radiometer. Elec. Eng.	621.327.5
Pressure, radiation. Optics	535.214	Radiometer. Optics	535.214
Price. Industry	6(002)	Radiometer, solar	551.521.1(078)
Price, selling. <i>Analy. Subdiv.</i>	...0035	Radiophone. Optics	535.35
Print. Photography	77.026	Rainbow. Meteorology	551.593.62
Print cutter. Photography	77.024.5	Rainbow, theory. Optics	535.432
Print preparation. Photog.	77.024	Range finder. Artillery	623.462.5
Printing frame. Photog.	77.142	Range finder. Topography	526.92
Prism. Geom. Optics	535.315	Ray plotter. Geom. Optics	535.314
Prism. Manufacture	681.42	Reading microscope	535.82
Prism. Optical apparatus	535.81	Recipe. <i>Subdiv. Form</i>	...(083)
Prism, Blish. Astronomy	52.241	Recorder, sunshine	551.521.1(078)

- | | | | |
|--------------------------------|------------|--------------------------------------|-------------|
| Reduction, chemical. Photog. | 77.023.6 | Rotatory polarisation. Optics | 535.56 |
| Reflection. Optics | 535.312 | Roumania | (498) |
| Reflection apparatus. Optics | 535.87 | Russia | (47) |
| Reflection, dyn. theory | 535.57.01 | Russian | =91.7 |
| Reflection, metal. Optics | 535.573 | | |
| Reflection, selective. Optics | 535.572 | Saccharimeter. Optics | 535.568.2 |
| Reflection, theory. Optics | 535.57 | Salary. Sociology | 331.2 |
| Reflector. Astronomy | 52.221 | Salon. <i>Subdiv. Form</i> | ...(064) |
| Reflector. Microscopy | 578.21 | Sand. Glass Industry | 666.12 |
| Refraction. Geom. Optics | 535.314 | Sand blasting. Glass Ind. | 666.283 |
| Refraction, air. Meteorol. | 551.593.9 | Sanitary Engineering | 628 |
| Refraction, chem. con. Optics | 535.583 | Sanskrit | =91.2 |
| Refraction, conical. Optics | 535.532 | Scandinavian | =39.5 |
| Refraction, double. Cryst. | 548.91 | Scatter. Optics | 535.43 |
| Refraction, double. Optics | 535.55 | Science, Applied | 6 |
| Refraction, theory. Optics | 535.57 | Sciences, The | 5 |
| Refractive index. Optics | 535.32 | Scientific instrument. Ind. | 681.2 |
| Refractometer. Optics | 535.322 | Scintillation. Meteorol. | 551.593.2 |
| Refractometer, interferent. | 535.414 | Sclerotic. Ophthalmology | 617.715 |
| Refractometry, methods | 535.321 | Scotland | (41) |
| Refractor. Astronomy | 522.22 | Scotometer. Optics | 535.736 |
| Relief, visual. Optics | 535.767 | Screen, fluorescent | 535.371 |
| Relief, visual. Physiology | 612.846.7 | Screen, orthochromatic | 77.135.6 |
| Religion | 2 | Screen, projection. Cinema | 77.855 |
| Repair. <i>Analy. Subdiv.</i> | ...0046 | Screen, projection. Photog. | 77.824 |
| Report. <i>Subdiv. Form</i> | ...(048) | Screw. Mech. Eng. | 621.881 |
| Research lab. <i>Sub. Form</i> | ...(072) | Screw thread. Photog. | 77.135.3 |
| Residue. <i>Analy. Subdiv.</i> | ...0026 | Searchlight. Optics | 535.88 |
| Residue. Photography | 77.027 | Selling price. <i>Analy. Subdiv.</i> | ...0035 |
| Resin. Industry | 668.4 | Semaphore. Marine | 627.93 |
| Resistance of materials | 539.4 | Service and use. <i>Analy. Sub.</i> | ...004 |
| Resolution, opt. instr. | 535.424 | Sextant. Aeronautics | 629.13.0531 |
| Resonance, optical | 535.43 | Sextant. Astronomy | 52.241 |
| Resonator, sound. Physics | 534.4 | Shadow. Optics | 535.311 |
| Retina. Ophthalmology | 617.735 | Shutter. Photography | 77.136 |
| Retina. Optics | 535.73 | Siberia | (57) |
| Retina. Physiology | 612.843 | Sight. Zoology | 59.11.856 |
| Retina. Zoology | 59.14.84 | Sight, azimuth. Geodesy | 52.691 |
| Retina, photography. Physiol. | 612.843.11 | Sight, dial. Artillery | 623.462.2 |
| Retinal function. Physiol. | 612.843 | Sight, gun. Artillery | 623.425.1 |
| Retinoscopy. Physiology | 612.843.12 | Signal. Marine | 627.93 |
| Reviews | 05 | Signal, optical. Commun. | 654.91 |
| Reviews. <i>Subdiv. Form</i> | ...(05) | Signal, optical. Munitions | 623.731 |
| Rifle fire | 623.555 | Signalling lamp. Commun. | 654.91 |
| Rock. Polarisation. Optics | 535.548.3 | Silica. Glass Industry | 666.12 |
| Rock crystal. Tech. Mineral. | 552.45 | Silvering glass. Industry | 666.165 |
| Röntgen ray. Photography | 77.833 | Sky, colour of. Optics | 535.431 |
| Röntgen ray. Physics | 535.372 | Slide cabinet. Microscopy | 578.4 |

- | | | | |
|------------------------------|----------------|------------------------------------|----------------|
| Slide, lantern. Photography | 77.825 | Spirit level. Physics | 532.291 |
| Society. <i>Subdiv. Form</i> | ...(06) | Spring. <i>Subdiv. Time</i> | " : 21" |
| Society, learned | 06 | Spying glass. Industry | 686.77 |
| Sociology | 3 | Squaring on. <i>Analy. Subdiv.</i> | ...00272 |
| Solar radiometer | 551.521.1(078) | Squint. Ophthalmology | 617.761 |
| Solar spectrum. Optics | 535.334 | Staff. <i>Analy. Subdiv.</i> | ...0071 |
| Solids, refractive index | 535.323 | Staining metal. Industry | 667.673 |
| Solution. Physics | 532.7 | Stand. Microscopy | 578.3 |
| Solutions, refract. index | 535.324 | Stand. Photography | 77.134 |
| Sound. Physics | 534 | Standard, photometric | 535.241 |
| Sound, velocity | 534.2 | Statics | 531.2 |
| Source, light. Microscopy | 578.5 | Statistics. Industry | 6(001) |
| South Africa | (68) | Statistics. Sociology | 31 |
| South Africa, Central | (67) | Stellar atmosphere. Phys. | 533.36 |
| South America | (8) | Stellar photometry | 535.246 |
| South Pole | (99) | Stellar spectra. Optics | 535.335 |
| Spain | (46) | Stereoscope. Optics | 535.767 |
| Spanish | = 6 | Stereoscope. Photography | 77.844 |
| Specification. Industry | 6(003) | Stereoscopic photography | 77.84 |
| Specific weight. Physics | 532.4 | Stereoscopic projection | 77.845 |
| Spectacle. Optical Indust. | 681.411 | Stereoscopy. Physiology | 612.846.7 |
| Spectacle. Optics | 535.83 | Storage. <i>Analy. Subdiv.</i> | ...0044 |
| Spectacle. Prosthesis | 617.928.79 | Strabismus. Ophthalmology | 617.761 |
| Spectra, absorption. Optics | 535.342 | Strabismus. Physiology | 612.846.8 |
| Spectra, emission. Optics | 535.33 | Stroboscopy. Physics | 531.77 |
| Spectra, gas. Optics | 535.336 | Structure, molecular. Physics | 539.1 |
| Spectra, metalloids. Optics | 535.332 | Studio. <i>Analy. Subdiv.</i> | ...0063 |
| Spectra, metals. Optics | 535.331 | Study. <i>Subdiv. Form</i> | ...(071) |
| Spectra, stellar. Optics | 535.335 | Summer. <i>Subdiv. Time</i> | " : 22" |
| Spectra, various. Optics | 535.336 | Sunshine recorder | 551.521.1(078) |
| Spectral analysis. Chem. | 544.6 | Supervisor. <i>Analy. Subdiv.</i> | ...0074 |
| Spectrometer | 535.84 | Surface brightness. Optics | 535.36 |
| Spectrophotometer | 535.243 | Surface flow. Physics | 539.63 |
| Spectropolariscope | 535.511 | Surface measurement. Phys. | 531.72 |
| Spectroscope. Optics | 535.84 | Surgery | 617 |
| Spectroscope. Opt. Ind. | 681.414 | Survey. Geodesy | 526.9 |
| Spectroscope. Ref. ind. Opt. | 535.322 | Surveying instrument | 526.91 |
| Spectroscopic analysis | 535.84 | Sweden | (485) |
| Spectroscopy. Astronomy | 522.67 | Swedish | = 39.7 |
| Spectroscopy. Physics | 535.84 | Switzerland | 494 |
| Spectrum, energy. Optics | 535.232 | Symposium. <i>Subdiv. Form</i> | ...(063) |
| Spectrum, normal. Optics | 535.421 | Syrian | = 92 |
| Spectrum, solar. Optics | 535.334 | Systems, optical. Geom. Opt. | 535.317 |
| Spectrum, telluric lines | 551.593.4 | | |
| Spherical aberration. Optics | 535.317 | | |
| Spherical mirror. Optics | 535.313 | Table. <i>Subdiv. Form</i> | ...(083) |
| Spherometer. Physics | 531.717 | Table. Microscopy | 578.4 |
| Spin, measurement. Physics | 531.77 | Tarnishing, optical glass | 666.22 |

Teaching. <i>Subdiv. Form</i>	...(071)	Triangulation. Geodesy	526.3
Telegraphy, optical	65.491	Tricolour filter. Photog.	77.864
Telemeter. Artillery	623.462.5	Tripod. Photography	77.134
Telemeter. Geodesy	526.92	Tropism. Zoology	59.11.85
Telephony. Communications	654.6	Tube, glass. Industry	666.173
Telephotography	77.832	Turkey	(496)
Telescope. Astronomy	52.22	Twilight. Meteorology	551.593.5
Telescope. Industry	681.412	Tyndall effect. Optics	535.43
Telescope. Optics	535.83	Tyndallmeter. Optics	535.43.07
Telescope, celebrated	52.229		
Telescope, gun-sighting	623.462.1	Undulatory theory. Optics	535.12
Telescope, mercury. Astron.	52.221	Uniaxial crystal. Optics	535.52
Telescope objective	52.224	Unit. <i>Subdiv. Form</i>	...(017)
Telluric lines, spectrum	551.593.4	Unit, photometric	535.241
Temperature. Meteorology	551.52	United States	(73)
Temperature. Physics	536.5	Upkeep. <i>Analy. Subdiv.</i>	...0045
Terminology. <i>Subdiv. Form</i>	...(014)	Upkeep. Industry	6(006)
Terrestrial magnetism	538.7	Use and service. <i>Analy. Sub.</i>	...004
Test. <i>Analy. Subdiv.</i>	...0014		
Test plate. Opt. Industry	681.42	Vacuum pump. Physics	533.5
Testing field. <i>Analy. Subdiv.</i>	...0062	Velocity. Physics	531.76
Tetrahedral prism. Optics	535.315	Velocity, light	535.22
Theodolite. Physics	531.742	Velocity, sound	534.2
Theodolite. Topography	52.691	Vibration. Physics	531.32
Theory. <i>Analy. Subdiv.</i>	...0012	Vibration, elliptic. Optics	535.541
Theory. <i>Subdiv. Form</i>	...(015)	View-finder. Photography	77.137.1
Theory. Physics	53.01	Vision. Physiology	612.84
Thermodynamics. Physics	536.7	Vision, binocular. Optics	535.762
Thermo-electricity	621.36	Vision, binocular. Physiol.	612.846.2
Thermometer. Physics	536.51	Vision, colour. Optics	535.733.1
Thermometry. Meteorology	551.52	Vision, colour. Physiol.	612.843.31
Thermopile. Elec. Eng.	621.362	Visual acuity. Optics	535.736
Thesis. <i>Subdiv. Form</i>	...(043)	Visual acuity. Physiol.	612.843.6
Thick lens. Geom. Optics	535.317	Visual fatigue. Physiol.	612.843.1
Thickness, measurement	531.717	Visual field. Physiol.	612.843.6
Thin lens. Geom. Optics	535.316	Visual illusion. Physiol.	612.843.74
Thin plates, colour. Optics	535.415	Visual persistence. Optics	535.735
Time. Physics	531.76	Visual persist. Physiol.	612.843.5
Time, universal. <i>Subdiv. Time</i>	"∞"	Visual purple. Optics	535.731
Toning. Photography	77.023.5	Visual purple. Physiol.	612.843.1
Tool. Mech. Eng.	621.9	Vitreous humour. Ophthal.	617.747
Tool, glass working	681.42	Vitreous humour. Optics	535.74
Topography. Geodesy	526.9	Vitreous humour. Physiol.	612.844
Topography, military	623.71	Volume measurement. Phys.	531.73
Transport. <i>Analy. Subdiv.</i>	...0043		
Transport. Engineering	629.1	Wages. Sociology	331.2
Treatise. <i>Subdiv. Form</i>	...(021)	Waste. <i>Analy. Subdiv.</i>	...0026
Trial case. Optics	535.75	Watch. Industry	681

Wave, stationary. Optics	535.416	Workshop. <i>Analy. Subdiv.</i>	...0063
Wave-length, measure. Opt.	535.61	Workshop organisation	621.7
Wave theory. Optics	535.12		
Wave theory. Sound	534.1	X-ray. Photography	77.833
Wear and tear. <i>Analy. Subdiv.</i>	...0046	X-ray. Physics	535.372
Weights and measures	389		
Winter. <i>Subdiv. Time</i>	" : 24"	Yard. <i>Analy. Subdiv.</i>	...0063
Work. Mechanics	531.4	Year book. <i>Subdiv. Form</i>	...(058)
Work, measurement. Physics	531.78		
Workman. <i>Analy. Subdiv.</i>	...0072	Zoology	59

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